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THE AUTOMOBILE

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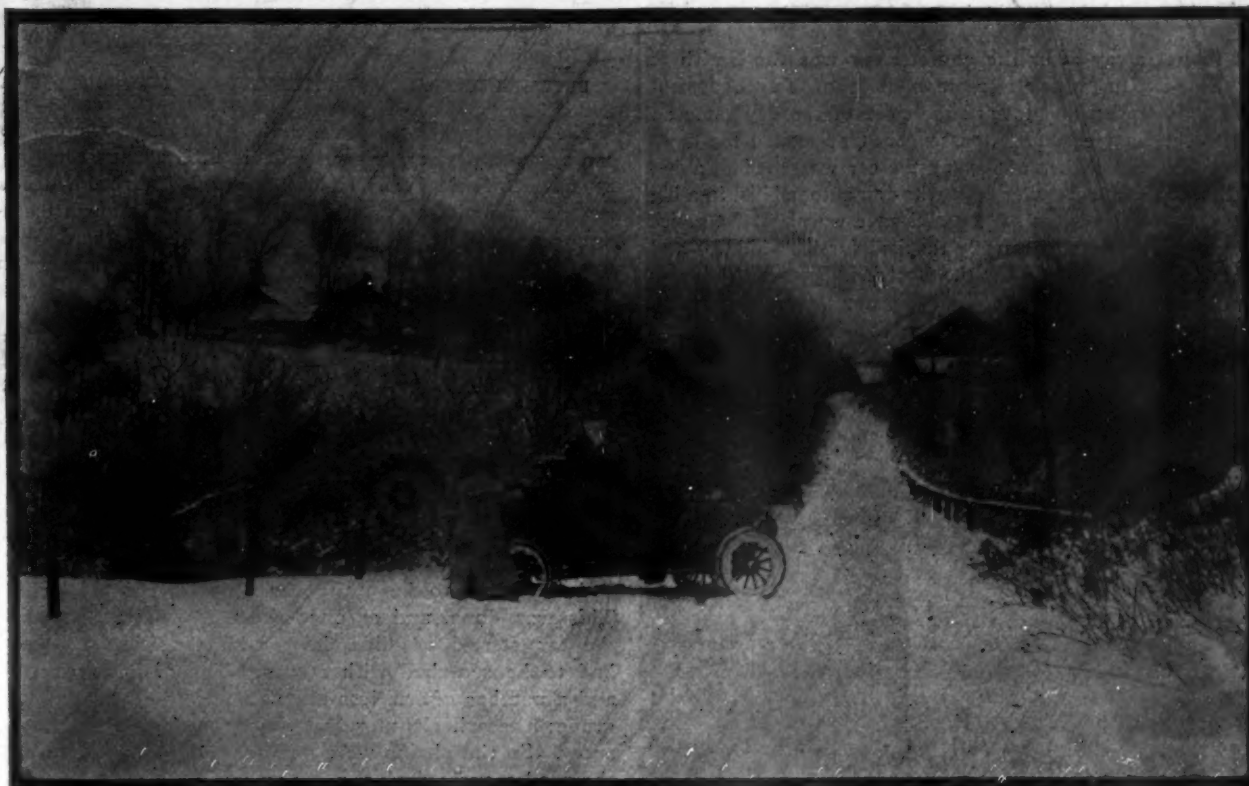
NEW YORK—THURSDAY, NOVEMBER 22, 1906—CHICAGO

No. 21

THE BLIZZARD BOUND ECONOMY CONTEST

"IT'S all right in the summer time," sang the hardy adventurers who manned the cars that took part in the annual economy contest of the New York Motor Club, "but in the winter time it's awful." The first signs of winter were showing themselves in New York on Wednesday morning, November 14, when six cars started for Albany on the first stage of the journey; toward the middle of the day the sun warmed the air and made things more comfortable; but the morrow found the would-be economists advancing under leaden skies into mountains that were covered with snow, over roads that were frozen beds of mud whose jagged ridges and yawning ruts were hidden until, in the heart of a

blinding, benumbing blizzard, the matter of economy was forgotten. Then the run resolved itself into a desperate struggle through mountain passes choked with snow, packed deep where the roads cut into the hills and drifted over the tops of the fences where the bitter wind found an opportunity to swirl it into miniature mountains. Only a Frayer-Miller kept the right road and battled through within a few minutes after the expiration of the official time limit. Thursday night found all the others still ploughing through the storm, snowed in on the road, or forced to seek shelter for the night at the nearest country hostelry or farmhouse, fortunate in escaping from the rage of the blizzard, which was most severe for this early in winter.



A GOOD SAMPLE OF WHAT THE CARS ENCOUNTERED IN THE BERKSHIRES—DORRIS NEAR PERU MOUNTAIN.



SIMPLEX AND REO FIGHTING THEIR WAY UP TUNNEL HILL.

First to start was a 24-horsepower Frayer-Miller, which also laid the confetti trail from New York to Albany over roads that aggregated a length of 150 miles. Following is the list of starters in the order of their departure:

No. 2—24-horsepower Frayer-Miller; Frayer-Miller Auto Company, entrant; Harry Knepper, driver; E. H. Slacer, observer; five passengers; weight, 3,610 pounds.

No. 4—30-horsepower Simplex; Smith & Mabley, Inc., entrant; John F. Lang, driver; William Young, observer; five passengers; weight, 4,035 pounds.

No. 5—24-horsepower Premier; R. M. Owen & Co., entrant; C. C. Singer, driver; James Smith, observer; five passengers; weight, 3,320 pounds.

No. 6—8-horsepower Reo; R. M. Owen & Co., entrant; R. L. Lockwood, driver; A. E. Schwartz, observer; four passengers; weight, 1,915 pounds.

No. 3—24-horsepower Dorris; Barnett Jackson Company, entrant; A. L. Jackson, driver; R. V. Carter, observer; five passengers; weight, 3,490 pounds.

No. 1—50-horsepower Wayne; A. L. Kull, entrant; A. L. Kull, driver; Thomas Hanauer, observer; seven passengers; weight, 4,400 pounds.

First to get away after the confetti car was the Smith & Mabley Simplex, in which a representative of THE AUTOMOBILE was a passenger, and toward the close of the day came an incident to the Simplex and its passengers that spoiled the day's run. Just on the outskirts of Albany the car was bowling along toward the city in the growing dusk when an automobilist in a big fur coat signaled the driver to stop and gave warning of a police trap just beyond. He was warmly thanked for his kindness and the car proceeded to *crawl* over the stretch indicated. Suddenly two husky young rustics, with police badges on their coats, sprang into the road and stretched a rope across the way.

"Stop that machine and turn back!"



WHEN THE ROADS WERE GOOD, THEY WERE GOOD INDEED.

Taken completely by surprise, the driver almost ran over the rope and demanded an explanation.

"Youse made that mile in two forty," said one of the youths, "and y'aint s'posed to do it in no less than three minutes."

Remonstrance was vain, though the entire party declared that the speed was nothing like that claimed, and a short and cheerless run of a few hundred yards was made to the house of J. P. Hannes, a white-whiskered rural magistrate who sat behind a pile of fat ledgers in his own dining-room. By some strange necromancy he knew in advance what the charge was and had the time—2 minutes 40 seconds—entered against the unfortunate driver. He solemnly declared that \$25 was the minimum fine, which he thereupon imposed. He refused to tell how the timing was done, refused proof of his assertion that the legal speed had been exceeded and grew impatient at all protests, remarking, "They all say them things." Perhaps the most enlightening remark he emitted was "We need the money." Perhaps he did. The State gets half the fines and the magistrate and the amateur police whack up the other half.



BETWEEN HINSDALE AND PITTSFIELD SNOW WAS PLENTIFUL.

The next day, Thursday, the confetti was taken by a Compound car, a non-contestant, driven by David F. Graham. The run was 139 miles to Springfield. The confetti trail, disturbed by the wind, was very faint on turns and doubtful places, although the white scraps remained thickly on the straight roads where deviation was impossible. So the road was lost time after time and many miles added to the length of the run. The air grew colder as the mountains were approached, and snow was seen in patches in the fields, while the hills were completely covered with it.

The first real trouble of the run, aside from losing the road, occurred on a big hill between Chatham and State Line, known as Tunnel Hill. The road was deep with snow and the air was full of it when the Simplex started up the formidable grade, and it was not long before the low gear was engaged and the car plugging steadily toward the top. About two-thirds of the way up, however, the artistic temperament of Photographer Cornille got the better of him and he asked to have the car stopped for a photograph. This was done, and at once the mistake was realized, for the car started to slide down with the wheels locked and had to be scotched with stones. The pictures were taken and a number of fruitless efforts made to start again on the grade; the wheels merely spun around and scattered the snow. So the chains were put on, and though they tore up the road a great deal, the car was finally got to the top. In the meantime the little Reo had caught up, and with the assistance of all hands and a couple of sections of board fence was boosted up; the little chap had no chains.

But worse trouble began later. Without any knowledge



THE SURVIVING FRAYER-MILLER WHICH GAINED THE HONORS.

of the country, without a list of the towns to be passed, without the guiding line of confetti and in the midst of a snow-storm that was savagely whipped by the rising wind, the Simplex got off the route. A couple of miles out of Hinsdale there is a steep pitch, not very long, in a deep cut. This was filled with drifted snow and just as the car began to take the rise a big lumber sleigh started to come down. Then traction failed. So the driver unhitched his horses and attached them to the car, hauling it up until there was room for the sleigh to go by. Two miles further the road forked and the driver went to the right; but a hill loomed up ahead and seemed to go straight up in the air; so the other fork was tried. Just as the car was getting under way in the new direction a farmer and his wife came along in a sleigh and were asked the best road to Springfield.

"What d'ye want to go over Peru Mountain fur?" he inquired. "There's a durn sight better road down t'other side of Hinsdale, an' there ain't no bad hills in it."

Hopeful once more, the back track to Hinsdale was taken, and on inquiring at the Hinsdale Hotel for the road referred to, it was found to exist only in the imagination of the farmer. The only other road to Springfield was over the terrible Jacob's Ladder, which was torn up for road repairs, they said, and, with the addition of the snow, impassable. A council of war was held and it was decided to remain at the hotel over night and make a fresh start in the morning. So the Hotel Hinsdale prepared dinner for five.

To make a long story shorter, the circulating pump was found frozen up after the engine had been started, and it was late in the afternoon before repairs were made. Pittsfield was reached just before dark and here the plucky Dorris was left, its only trouble being caused by the neglect of the driver to replace an old collar before starting.

Simplex got under way about 8 o'clock for Hartford, taking along a guide—expert demonstrator Archambault from the Pittsfield garage—and the night ride through the snow was one of the most exciting experiences any of the party had ever been through. Time after time the road was lost; time after time the car was stopped in front of a farmhouse and the united shouts of the party, combined with the honking

of the horn, the roaring of the accelerated motor and pounding on the door failed to awaken the sleepers; time after time when the road was found to follow the river all the way down, the car skidded horribly over the black, ice-filled water; time after time the car sidled, crashing into the brushwood along the narrow, icy way, until the three passengers in the swaying, rocking tonneau were ready for anything from a cold plunge to annihilation against a telegraph pole. Hartford was reached at about 4 a. m. and all turned in for a few hours' sleep. The road was taken at 10 o'clock next morning, and after an uneventful run, during the early part of which the last vestiges of snow were left behind, New York was reached at 3.30 p. m.

The Successful Journey of the Frayer-Miller.

The air-cooled Frayer-Miller made a perfect trip to Albany, and then accomplished the difficult journey from Albany to Springfield, climbing the fearful Jacob's Ladder, in company with the official Compound car, and arriving at the night checking place within a few minutes of 10 p. m., the limit hour of arrival.

During the first two days in the Frayer-Miller, besides Operator Knepper and the observer, were Mr. and Mrs. Harold Mabie and Mrs. Charles Cunningham, Mr. Mabie's sister. In the height of the storm on Wednesday Mrs. Mabie and Mrs. Cunningham were transferred to the Compound because it possessed a cape top. The Frayer-Miller plowed its way to Springfield, and a couple of hours in its wake came the Compound with its plucky but frozen fair passengers.

The Frayer-Miller's journey ended in New York City shortly after 6 o'clock Friday evening; the Compound appearing about midnight, and the Premier at 2.30 a. m. Saturday. The Wayne and Dorris were shipped home, and the little Reo was rescued from a snowbank near Otis, Mass., and also came back to the metropolis as a railway passenger.

Wednesday the Contest Committee, after considerable deliberation, decided to give a certificate and special cup to the Frayer-Miller, the lateness at Springfield preventing the naming of the car as an unqualified winner. The Premier was commended for its performance, and the Compound especially mentioned for its excellent official labors.



D. F. GRAHAM, WHOSE COMPOUND PERFORMED CONSISTENTLY.

ELABORATE PLANS OF THE PARIS SALON

PARIS, Nov. 10.—Active work on the Paris Salon commenced this week by the erection of the new building intended to serve as the industrial section. As last year, the main hall will be the magnificent Grand Palais in the Champs-Élysées. The glass building on the banks of the River Seine no longer being available, a fresh site had to be sought, and the Explanade des Invalides, a vast stretch of land separated from the Palais by the river and the Alexandre III. bridge was selected. The Paris Municipal Council insisted that the main avenue and one cross-road should remain open to traffic, and consequently four separate buildings had to be erected. Having withdrawn its previous regulation, M. Rives announces with satisfaction that only one hall will be erected, from side to side of the Esplanade, built over the wide central avenue. The floor area has been slightly diminished by this arrangement, but a more magnificent site it would be impossible to imagine.

Most Magnificent Site in the French Capital.

From the Champs-Élysées to the Esplanade des Invalides crossing over the Alexandre III. bridge—the most magnificent in Paris—will be an illuminated triumphal arch, which M. Rives declares will excel anything of the kind ever seen in France. On November 7, exactly one month from the opening day, work was begun on the temporary building, and in view of the magnitude of the undertaking—for it must be remembered that this section will contain all the industrial vehicles, motor boats, machine tools, balloons, etc.—fears are expressed that the show will not be ready in time. The Commissaire-Général declares that all will be finished to time, and that when President Fallières walks up

the steps to the music of the Garde Républicaine band everything will be in place.

Competitions During the Salon.

Entries for the endurance and regularity competition in connection with the show, reserved only to models exposed at the Salon, have not drawn as many entries as were expected. Up to the present only fifteen machines are engaged, representing the following firms: Herald Unic, Chenard & Welch, Bayard-Clément, Couverchel, Eugène Brillié, Westinghouse, Decauville. A start is made from Paris on November 25, running by stages to Monte Carlo, where an exhibition will be held. The return journey will be by the same route, arriving at Paris on December 5, two days before the opening of the show. As in endurance contests, the run will not prove much, its value lying in the publicity which will be given to the competitors in the districts traversed.

During the Salon a competition will be held for the best mechanical means of inflating automobile tires. Regulations are not yet announced, but a prize list of \$105 is promised and further subscriptions are asked for.

An automobile lamp competition will also be held next month in connection with the show, with the object of improving the methods of lighting at present in use. One hundred and twenty-five dollars is offered in prizes. Points are allotted as follows: Laboratory test, \$50; weight, size, and elegance, \$10; price, \$5; cost of upkeep, \$5; length of lighting without recharging or refilling, \$10; ease of regulating the light for town or country work, ease of lighting and extinction, \$10; ease of charging the source of energy, \$10; total, \$100.

AN AUTO CHAPTER FROM GREAT BRITAIN

LONDON, Nov. 15.—An interesting development of co-operation among automobile owners is indicated by the present scheme of the Motor Union for the formation of a company for the insurance of its members' cars. It is expected that by confining operations to members, great reductions in premiums will be possible, in contrast with the present big charges made by many British insurance companies for automobile risks. The idea has met with much approval, and it is intended to commence business on January 1 next. The Motor Union has now a total membership of over 13,800 motorists and some eighty clubs.

To celebrate the tenth anniversary of the passing of the Motor Car Act of 1896, which legalized the use of automobiles on British roads, the union has decided to hold a big dinner, to which will be invited representative mayors and chief constables, also head surveyors and other officials dealing with the highways. The same anniversary is being commemorated by a run to Reigate and back, participation in which is confined to automobilists who held responsible positions in the industry before 1896.

Law Not to Be Changed Until End of 1907.

It will be remembered that the findings of the Royal Commission, which investigated at great length the working of the existing motor laws were mainly favorable to motorists, the main recommendation of interest being the abolition of speed limits, except within large towns. After the report of the commission it was expected that new legislation would be made this winter. The government has decided, however, not to go into the matter till next year, and the present temporary law will be continued till the end of 1907.

White Wins in A. C. Town Carriage Trials.

After a long period of inaction, the Trials Committee of the A. C. G. S. I. evolved a competition test for Town carriages a

fortnight ago. Although very short notice was given, thirty-three entries were received. Two days were spent in an examination of the cars as to vibration, comfort, ease of starting, and gear-changing, and every conceivable point which could affect the comfort of users. Road tests included turning, maneuvering, and reversing in a confined space, and finally a thirty-mile run was made. No less than fourteen classifications were made on the results of which the final awards were based. In the class for vehicles costing up to \$3,000 complete, gold medals were gained by a Siddeley and an electric brougham, while in the higher priced section White steam cars divided the honors with the Electromobile vehicles.



WHITE STEAMER WHICH WON GOLD MEDAL IN THE LONDON TOWN MOTOR CARRIAGE COMPETITION.



ALONG THE HISTORIC LANCASTER PIKE AND ON THE ROAD TO THE BATTLEFIELD OF GETTYSBURG.

A TOUR TO THE BATTLEFIELD OF GETTYSBURG

By PATHFINDER.

THESE few notes relating to the Battlefield of Gettysburg and the routes leading to it may prove of interest to those motorists who are looking for places of interest toward which to direct their tours. Furthermore, Gettysburg is now attracting considerable attention owing to the fact that the route of the next A. A. A. tour will probably include this historic locality.

The tourist starting for the Battlefield of Gettysburg should direct his course toward Philadelphia. The road to the City of Brotherly Love has recently been well-dotted with sign-posts by the Automobile Club of America and the tourist will have little difficulty in finding his way. These sign-posts, however, cover only the road by way of Newark. Those who take the more usual route by way of Staten Island will find a number of forks on their way across the island where they

will probably need to inquire the way. The two routes, that by way of Newark and that by way of Staten Island, converge at Metuchen. While on the question of sign-boards and route directions, it should be stated that we found one of the most important turns, that into the "White Horse Pike" just south of Trenton, was without a sign-board. I cannot believe that the A. C. A. left this turn unmarked and think that some one must have destroyed the sign, a species of vandalism to which, it is to be feared, automobile sign-posts will always be subject. The roads between New York and Philadelphia are almost uniformly excellent. The country, however, is very flat and uninteresting, and little can be seen which impresses itself upon one's memory.

Beyond Philadelphia, two distinct routes to Gettysburg are offered, one by way of Lancaster



ANNOYING TOLLGATES.



THE BATTLEFIELD OF GETTYSBURG IS STREWN WITH MONUMENTS, EVERY REGIMENT ENGAGED HAVING ITS MEMORIAL STONE.



A PENNSYLVANIA MONUMENT

BIG ROUND TOP, WHERE FIGHTING WAS FIERCE.

TAMMANY REGIMENT, 42 N. Y. INFANTRY.

and York, the other by way of Reading and Harrisburg. On our outward journey we went by the former route, and we returned by way of the latter. While the road by way of Harrisburg and Reading may average up a little better in quality, still in view of greater mileage, there is probably little choice.

We found it very easy to find our way over all the pikes. There are but few forks where one could be in doubt as to which road to take, and very few puzzling turns. The first road direction, after leaving the city of Philadelphia, which should be carefully noted, is as follows: At Malvern, after passing Hires' Condensed Milk Factory, turn sharp right, crossing the railroad tracks.

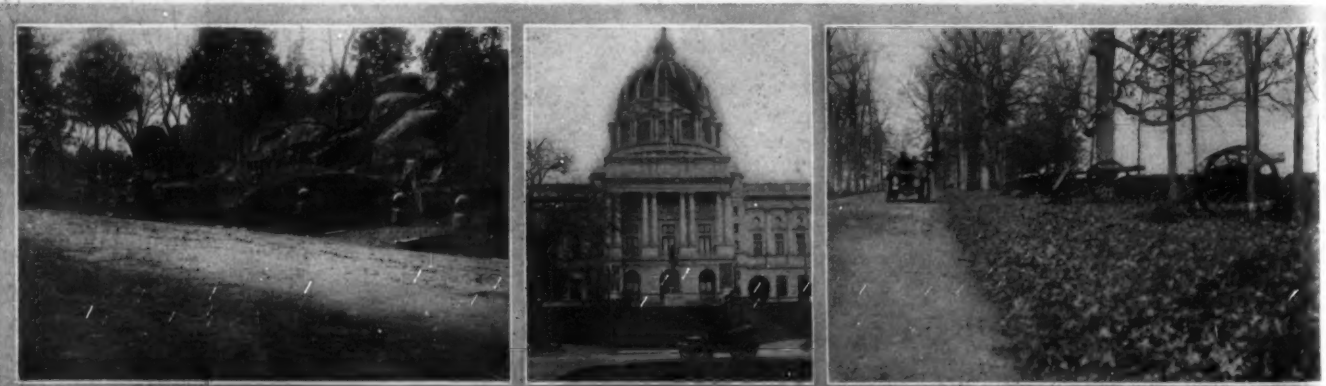
At Coatesville, forty miles from Philadelphia, we had a good luncheon, and then hastened on our way. The Pike, as far as Coatesville, we found in very good condition, but beyond that place its character changes for the worse. In that section of Pennsylvania there is very little level country, and, accordingly, the road is a constant series of ascents and descents. In order to prevent the water from rushing down the hillsides, there have been placed at frequent intervals "water-brakes" of a cross-section and plan, well calculated to jolt the machinery of the car and its occupants. Rushing the hills—not one of which, by the way, is particularly steep—is out of the question. One must slow down at each "Thank-ye-ma'am," and we had abundant opportunity to appreciate the qualities of great flexibility of control and rapid acceleration possessed by our White steamer.

At Lancaster we stopped but a few minutes, and then continued our way westward, reaching the town of York well before dark. We spent the night comfortably in this city of 50,000 inhabitants, and the next morning, in a pouring rain, went on to Gettysburg, 120 miles from Philadelphia. The section of the Pike leading into Gettysburg is sadly in need of repairs. The road is covered with loose stones about four or five inches in diameter, and the driver of the car swerves to avoid hitting one stone, only to strike another.

On reaching Gettysburg, our first care was to secure a guide.

This procedure is recommended to all tourists, as there are a number of old veterans who took part in the battle. We found Captain George W. Ziegler well qualified and an agreeable companion. These veterans know every inch of the battlefield and their animated descriptions of the maneuvers of the two armies are not the least interesting part of a half day spent on the battlefield. The National Government has made a national park of the battlefield and Uncle Sam has built many miles of perfect macadam road which reaches all the places of interest. There is probably no other spot in the world that has so many fine monuments. The various States have vied with one another in erecting memorials to their sons who died in this great conflict.

In three or four hours we had seen all that might be seen from a car, and we then commenced our homeward journey. We headed almost due north for Harrisburg. The first twenty miles of road out of Gettysburg were about as bad as one could find anywhere in a well-settled region. To attempt this stretch of muddy going without a good set of chains would be foolhardy. However, the last fifteen miles is somewhat better, and we finally struck some very fine macadam which carried us to the bridge which leads over the Susquehanna River to Harrisburg. Here we staid all night, and in the morning, after visiting the new \$13,000,000 statehouse, turned toward Philadelphia over the Reading Pike. The first nine miles of the road, to Hummelstown, were bad, but thereafter conditions improved very much, and we found good going all the way to Reading, and from there by way of Pottstown to Philadelphia. The only feature which checks the motorist's desire to make good average speed is the toll gate proposition. Every few miles he must stop and either pay toll or hand out a coupon. Many of the toll gatekeepers are superannuated, and much blowing of the horn is necessary before they take notice and come hobbling out. We found it was "Pay, pay, pay," every few miles, all the way into Philadelphia. Here we stayed for the night, and the next day retraced our way back to New York.



THE BLOODY DEVIL'S PUNCH BOWL.

HARRISBURG'S FAMOUS CAPITOL.

THE LONG CONFEDERATE BATTLE LINE.

RADICAL RULES FOR THE 1907 GRAND PRIX

PARIS, Nov. 10.—The 1907 Grand Prix of the Automobile Club of France will have as its only regulation a limited fuel supply, and will be organized by an outside contractor, who will have complete charge of the other details.

In making this decision the A. C. F. has made a clean sweep of the old and well-tried regulation of 1,000-kiloweight limit with 7 kilos for magneto, and has given constructors full liberty of action.

The race, which will be held on one day, and not two, as this year, will be over a total distance of 800 kilometers (497 miles), which must be covered with a gasoline allowance of 240 liters (52.8 gallons).

In its main features it is a contest similar to the British Tourist Trophy recently held in the Isle of Man, with the important difference that, while the English event was for touring machines with a minimum weight of chassis and body, the French contest is intended for racers pure and simple, free from all weight restrictions. In the Isle of Man one gallon of gasoline was allowed for twenty-five miles; in the French race the supply is 2.6 gallons for the same distance, which is practically the average consumption of the Grand Prix racers.

Intended to Limit the Horsepower.

As the new regulations were intended primarily to limit the increase of horsepower, objection is being made in many quarters to the generous fuel supply. Economy in the use of fuel will, of course, be sought, and doubtless obtained, and there is every likelihood of manufacturers producing machines as powerful, if not more powerful, than those already existing. Instead of 30 liters per 100 kilometers (6.6 gallons per 62.1 miles), critics maintain that 25 liters (5.5 gallons) would have been sufficient. Obviously the tanks will have to be carefully sealed before the race to prevent fraud, but we are not yet told how the gasoline will be given out. In the Grand Prix very large tanks were used in order to save time, the Dietrich machines carrying 35 gallons. Fifty-two gallons would necessitate an enormous tank, and would put such a weight on the rear axle at the beginning of the race as to destroy the balance of the machines. If half the quantity is given during the race, either the seals will have to be broken, and no further control will be possible, or the

machines will have to enter a control station and have time allowance for filling up and sealing tanks.

Controls May Again Become Necessary.

After such strong efforts in the past to abolish controls, it will be regrettable to see them once more revived, and this regret will be shared by both competitors and the public. So far as is at present known, work on the cars will have to be done by driver and mechanic only, as in the Grand Prix, and the use of dismountable rims will be allowed.

A tire competition will be held in connection with the race. Firms desiring to enter for this will give notice eight days before the race, stating the make of tires to be employed. Shoes and inner tubes will then be stamped by the club official, and a classification made on the lowest tire consumption, allowance being made for discarded tires, according to their condition. A speed equal to nine-tenths that of winner in the principal events must be maintained to qualify in the tire competition. Tire efficiency has always been difficult to control, and critics do not hesitate to point out the weaknesses of this match and to predict for it as little success as has attended previous tire competitions.

Victor Breyer to Manage the 1907 Grand Prix.

M. René de Knyff, chairman of the Sporting Commission, announces that the contractor for next year's race is M. Victor Breyer, a well-known Parisian autoist and journalist, known on both sides of the Atlantic, who will take over the entire organization of the race and free the club from all financial responsibility. The delicate question of responsibility in case of accident is at present being discussed by the club and the contractor. Permission to hold the race will be granted by the Government to the Automobile Club of France, and they alone would be held responsible in case of any injuries to spectators. The position of the contractor in such a case must be clearly defined in advance to prevent serious complications. In official circles the action of the club in farming out its race is heartily approved. *L'Auto*, a semi-official organ, heartily congratulates the Sporting Commission on its decision, and describes the arrangement as "elegant." Elsewhere there is less enthusiasm, people asking with much reason why, if a contractor can make a profit, the club should be unable to hold the race except at a heavy loss.

PRADE SAYS VANDERBILT CUP SHOULD REMAIN IN AMERICA

PARIS, Nov. 10.—Georges Prade, editor of *Les Sports*, commenting on the cable information from New York that W. K. Vanderbilt, Jr., was authorized to get into touch with the French club on his visit to Paris in December regarding the Vanderbilt Cup competition in 1907, declares that this attempt to "place" the Cup in Europe is not likely to meet with any success.

"The Vanderbilt Cup is only interesting so long as it remains in America," says M. Prade. "Transported to Europe it will be simply a second Gordon Bennett Cup, with little chance of success after the suppression of the first. If manufacturers race in the United States at great expense, and far from their factories, it is in the hope of influencing the rich American public which witnesses this contest. If the Vanderbilt Cup is disputed in Europe, how can you expect it to influence the American public more than the Grand Prix, the Florio Cup, or the Ardennes Circuit. I have difficulty in believing that the A. C. F. will accept the trophy. It has refused to continue to run the Gordon Bennett, which had the same regulations, and it has declared on the request of French manufacturers that it would

not challenge for the Vanderbilt Cup. To reorganize the Gordon Bennett race, which it has put on one side, and to add to it the Vanderbilt Cup, which it has also repudiated, would be like the story of the divorced man who took back his two wives.

"Italy," says M. Prade, "does not desire the Vanderbilt Cup, nor does Germany." His conclusion is that the trophy should be disputed in America or that it should become an object of art, and not be disputed at all.

M. Darracq, Who Believes in Racing, Ever Ready.

Although full particulars are not yet forthcoming regarding next year's German speed contest on the 1904 Gordon Bennett circuit, over a distance of 250 miles, M. Darracq has declared that he will enter three machines.

The distance selected for the Herkomer Cup race next year will cover about 1,800 kilometers, in five stages, as follows: Dresden-Meiningen, 368 kilos.; Meiningen-Munich, 403 kilos.; Munich-Lindau, 312 kilos.; Lindau-Munich, 236 kilos.; exhibition at Munich, Munich-Homburg, 460 kilos.



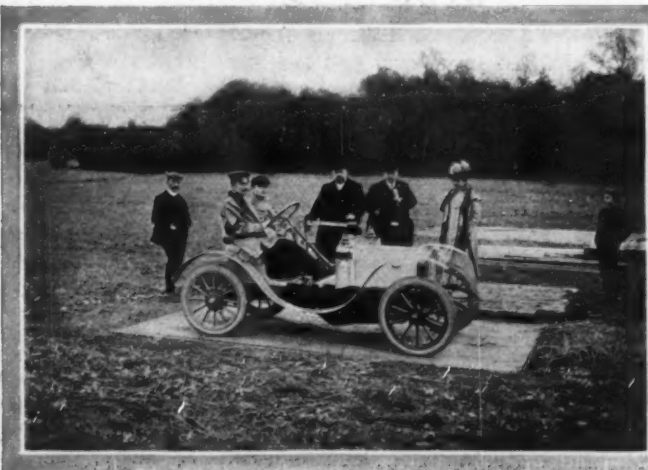
THE START IN THE RAIN AT ORIGNY-STE.-BENOITE.

FRENCH TRY NEW CLASSIFICATION.

PARIS, Nov. 6.—All the touring machines run in the Origny Sainte-Benoite meeting were classified according to their cylinder bore and maximum weight, as against catalogue price in the Dourdan and Gaillon contests. Lively discussions have arisen between the upholders of the two methods of classifying, each party upholding its creed with the vehemence of political candidates.

Lee Guinness left his London office Saturday evening for Paris, traveled out to Origny Sainte-Benoite, waited twenty-four hours for the drenching north-country rain to disappear, and repeated his victory of the two previous week ends. Over the two-kilometer course, with a standing start, his eight-cylinder, 200-horsepower, eleven months old Darracq racer was clocked in 1:00 2-5, equal to 74.3 miles an hour. The course was a curious one; starting on a level stretch just sufficient to get up speed, it was followed by 700 meters on a 7 per cent. gradient, 700 meters on the level, and a short distance down hill. The last thousand meters, on the level and down hill, were covered in 18 1-5 seconds, giving an average of 124 miles an hour.

Cecil Edge's six-cylinder Napier—an all-British representative—had again to be content with second place, his time being 1:06 4-5. The Britisher was built for the Gordon-Bennett race of 1904, and was not expected to triumph over the more modern Darracq. The Bayard-Clement six was again out of the running, not because of any structural defects, but for need of a little tuning up. These big fellows need a lot of private rehearsals before they are fit to run beside their trained companions under the eyes of a critical public.



PESSONEAU IN HIS DELAYE VOITURETTE

Demogeot earned further victories for "le père" Darracq by taking his light racer—400 to 650 kilos—over the two-kilometer course in 1:08 2-5. Villemain, on a four-cylinder Bayard-Clement, ran second in 1:29. Still another Darracq success in the voiturette racer class—250 to 400 kilos—Vivet recording 1:44 1-5. First and second positions in the motorcycle class were won by René Gillet machines, Théry recording 1:41 and Robert Bloch 1:51 1-5.

CARRY ANTI-SKIDS ON BOTH REAR WHEELS.

PARIS, Nov. 10.—The question has often been asked if an anti-skid band and a smooth tire on the rear wheels of an automobile was an undesirable arrangement on account of the difference of co-efficiency of adherence of the two shoes. Certain automobilists declare that the presence of a single anti-skid band is injurious to the differential, while equally experienced motorists maintain that the differential is in no way influenced by such an arrangement.

To illustrate the influence on the tires, Michelin quotes a case which has just been brought to his notice. On an 18-horsepower machine a driver fitted an anti-skid band on the left rear wheel and a smooth shoe on the right rear wheel. In the neighborhood of Clermont-Ferrand the chauffeur noticed that the anti-skid wheel was doing almost all the driving, while the right wheel was



GOUT IN HIS LEON PEUGEOT VOITURETTE.

slipping. On certain steep gradients this increased to such a degree that on muddy portions of the road it was almost impossible to move ahead with the help of one wheel only. The smooth-shod wheel was turning exactly like a loose pulley. The result was that at the end of 100 miles the smooth shoe, new at the start, was cut along the whole of its circumference. Deep furrows had been made right through to the heart of the gum, and the aspect was most lamentable.

This result is only as typical as it is logical. The co-efficient of adherence differing in an enormous proportion, the shoe with the most feeble adherence skidded. The smooth shoe is not the only one to suffer, for the anti-skid wheel having to furnish all the power is enormously strained. From a tire point of view, the question is settled: "Carry anti-skid bands on each rear wheel."

FIRST OF THE BRITISH SHOWS.

The first of the season's shows opened November 15 with the big exhibition at Olympia by the Society of Motor Manufacturers and Traders. Every type of pleasure automobile and accessory was staged, but even with the immense space available, the increase in the number of exhibitors has compelled the barring out of commercial vehicles. These will have a show by themselves early next year.

THE DEBATABLE QUESTION A SIDESLIP*

By THOMAS L. WHITE.

IN the first part of this article, which appeared in the last issue of *THE AUTOMOBILE*, the discussion of sideslip was confined to the case of a car running on a circular track. With this reservation it was shown that, provided the car responded to the direction set by the steering, or, to put the matter in another way, provided the front and rear wheels were equally inclined to the path described by the center of gravity of the car as a whole, the distribution of the weight of the car and its contents as between the front and rear axles was a matter of indifference. The question now arises whether the same conditions and the same deductions obtain when a car running on the straight turns into a road at right angles to its path.

The mathematical conception of a rigid body describing a curve is that it is always trying to move along the tangent to its path at any moment, and that it is continually being compelled by impressed forces to move otherwise. Thus the motion of a car running on a circular track is regarded, for the purpose of calculating the centrifugal force, as a perpetual turning out of the straight; and this way of viewing the matter would seem at first sight to make no discrimination between the case of a car running steadily on a curve and of a car in the act of turning out of one straight road into another at right angles to it. But it is clear that in the latter case we are no longer at liberty to assume that the direction set by the front wheels will be followed. The car might possibly skid as a whole, the front wheels sideslipping and the hind wheels turning; and as the natural path of wheels sliding has been demonstrated by Professor Darwin to be different to the natural path of wheels rolling, a brief rotary motion might possibly set up in the car, which would last until the diminished momentum permitted the sideslip-resisting action of the front wheels to come into play again.

The question whether the front wheels will grip or not is one which clearly involves the distribution of the weight of the car between the front and rear axles, for the greater the weight of the front part of the car, the greater will be the force of limiting friction which can be exerted at the contact of the front wheels and the road. If, however, the front wheels hold and the rear wheels skid, the resistance to such skidding, both in the first place before it occurs and afterward, while it is taking place, is, as in the case of a car running on a circular track, independent of the position of the center of gravity of the car. Thus if we increase the force of limiting friction at the hind wheel contact by setting the weight of the car well back, we are at the same time giving the centrifugal force additional leverage to swing the car around the point where the front wheels take their grip on the ground.

We have so far been regarding a car as though it were perfectly rigid; but this is far from being the case, for there are the strains and stresses in the tires and springs to be considered, the adjustments which will result under given conditions of equilibrium, and also the question of the effect on the movement of the car at critical moments of oscillations of the car itself relatively to the wheelbase. Thus to continue our comparison of a car running on a circular track and a car turning out of the straight, it is clear that in the former case the uniform turning-in motion will result in a more or less stable state of internal equilibrium in which the suspended mass of the car will keep the springs on the side toward which the centrifugal force is acting in a state of compression. In the latter case, as long as the car is running in a straight line, the springs on either side will, other things equal, be equally compressed; but when the steering wheels are set to make the turn, the mass of the car will tend to keep moving straight ahead, the front springs will be compressed, the limiting friction at the ground contact of the

front wheels will be increased, owing to the impulsive increase in the weight upon them, while for the opposite reason the friction of the rear wheels with the ground will be momentarily reduced. The net result, of course, will be that the tendency of the rear wheels to skid, while the front wheels hold their own, will be increased.

There is still another factor in the problem of a car turning out of the straight that remains to be dealt with, and that is the fact that the motor is working all the time. There is not a mere question here of a body with a certain amount of momentum which it is desired to direct into a direction at right angles to its original path. Let us assume that the car holds so far as the front wheels are concerned, but that the rear wheels skid. While doing so they will, of course, continue to revolve, and in this particular the car will tend to have, in addition to the skidding motion of its hind portion, a progressive motion in the direction of the drive. As the momentum which is generated by the motor is in the sense in which it is desired to steer the car, the general effect cannot be otherwise than good, and we are drawn to the conclusion that in negotiating a sharp turn it is an advantage to have the motor in operation, for if the rear wheels slip, the effect will be to pull the car into its proper gait.

If the phenomenon of sideslipping were confined to turning corners, it could be remedied by simply moderating the speed of the car when turning. Unfortunately, skidding also occurs not infrequently when a perfectly straight course is being steered on straight but slippery road. And here it is to be noted that we are not dealing so much with a change in the direction of the motion of the center of gravity of the car as with a rotation of the car as a whole, while its original path is more or less maintained without any considerable change of sense. To assign a general cause in such cases is almost an impossibility, and so far as remedies are concerned nothing of a radical nature has as yet been suggested.

One of the most frequent causes of the type of skidding that we are now dealing with is a sudden application of the brake. For instance, a car in traversing a street, when the going is slippery, is liable at any time to get out of control if the driving wheels are suddenly locked. The mischief is undoubtedly in a large measure traceable to an unequal reaction with the ground of the two locked wheels. As long as the drivers are revolving a slight difference in the roughness of the portions of the roadbed with which they are respectively in contact has but little effect. The very minute inequalities of the road surface from which the drive takes its leverage are, as it were, rolled over rather than pushed against. But when the drivers become stationary, so far as rotary motion is concerned, the effect of a slight difference in the size or number of these projections will have a marked effect, for each little excrescence is now compelled to plough its way along the surface of the contacting tire, and an increase in the size or number of these excrescences will mean an almost proportionate increase in the frictional resistance. As there are few roads in which the surface is uniformly rough, no matter how slippery the going may be, we may take it that when, under such circumstances, the drivers of a car are locked, the resistance of the roadbed on one side is greater than the resistance on the other, and a force comes into action whose tendency is to rotate the car about its center of gravity. This tendency is resisted by a *moment* whose factors are the resistance to sideslip at the front wheel ground contact and the distance between the front and rear axles. It consequently follows that long lines in a car have the advantage of tending to prevent it swerving on a slippery surface, and that in a like case it is important that the grip of the steering wheels should be rendered as great as possible. It is not advisable, however, to gain the second advantage

*Continued from page 638, issue of November 15.

by increasing the weight of the front part of the car, for the effect of this would be to lessen the weight on the drivers, and so to increase the active cause of the whole trouble.

There is another element in the case which still remains to be reckoned with, and that is the fact that the resistance to sideslip of the locked hind wheels is considerably less than that of the rolling front wheels, and that, in consequence, although the beginning of the swerving motion will be an instantaneous and momentary rotation of the car as a whole around the point of ground contact of one of the drivers, the greater resistance to slipping of the front wheels will immediately tell, the rear of the car will swing since the resistance to sideslipping is smaller, and a movement of rotation will tend to set up in the car about its center of gravity. It has been stated by a number of chauffeurs that if skidding takes place when the drivers are running freely, the application of the brakes has a tendency to check it. We have just seen that when the rear wheels are locked skidding is due to the inequality of their respective reactions with the roadbed. It is possible that even when they are in operation a similar cause may come into action. Let us suppose, for example, that one driver fails to grip the road surface while the other continues to function in a normal manner. The resulting effect on the motion of the car will be at first substantially as in the preceding case. Consequently, if the rear wheels be locked at once, while the swerving motion is in its inception and the motion of the car is a motion of rotation about the point of ground contact of one of the drivers, then the sudden change in the grip on the road surface by the drivers which will result from locking them may tend to stop the rotation of the car by suddenly removing the *point d'appui* from which it takes its leverage.

In conclusion, it is, perhaps, unnecessary to point out the value of antiskidding studs, chains and like devices on the surface of the wheel tire itself or the importance of having a perfect equality in the break action on the drivers.

As a basis for determining the quantitative bearing of some of the points raised in this article, the tests conducted by the General Electric Company on the friction of smooth roads under various conditions should be of considerable value, and might afford data to calculate the best weight distribution to prevent skidding on a straight, smooth road.

WASHINGTON STATE AFTER GOOD ROADS.

NORTH YAKIMA, WASH., Nov. 17.—At the annual meeting of the Washington Good Roads Association resolutions were adopted urging the coming legislature to adopt measures of special interest to good roads advocates. A State aid road law along the lines of the New York law will be asked; the repeal of the law fixing the duties and per diem of county surveyors and providing for a qualified county engineer; the employment of convicts and jail prisoners on the highways; the passage of a State road law similar to that of Tennessee; the establishment of a school for teaching road making at the State college, and the appropriation of \$50,000 for topographic maps and investigation of the water supply of the State.

At the opening session Samuel Hill, of Seattle, who is a son-in-law of James J. Hill, the railroad magnate, delivered his annual address as president of the association. Mr. Hill must be recognized as one of the foremost good roads advocates in the country, and because of his wealth and influence will be able to do a great deal of good.

PITTSBURG TO HAVE ITS FIRST AUTO SHOW.

PITTSBURG, PA., Nov. 19.—At a recent meeting of the Pittsburgh Automobile Dealers' Association it was decided to hold an automobile show the second week in April in Duquesne Garden. President W. N. Murray will have charge of the arrangements. The entire ground floor will be utilized for exhibiting cars, and the space now used for seating will be reserved for accessories.

M. MICHELIN'S ADVICE FOR WINTER.

PARIS, NOV. 10.—Winter is upon us and with it comes the opportunity of overhauling and repairing the automobile and its equipment more thoroughly than can be done during the busy summer days. If the car is only going to be used at intervals—say once a week or once a fortnight—it should be jacked up to take the weight off the tires, says M. Michelin. If, however, it is going to have a longer rest, it is indispensable to dismount the tires, examine the inner tubes, security bolts, valves, etc., and repair or replace any defective parts. Never forget that damp is injurious to pneumatic tires. They should therefore always be put in a dry place, not too hot nor too cold—rather cold than hot for rubber is less sensible to low temperature than to high, especially when it has been used. For preference a dark spot should be used to store the tires. The shoes should be carefully wrapped round with brown paper or cloth. Inner tubes should be deflated, carefully rolled up and placed in a cardboard box with a layer of French chalk. Some automobilists leave their air chambers within the outer shoes, inflate them slightly, and envelop the whole in paper or cloth. This is a good plan, providing the air chamber is only very slightly inflated, hardly enough to round it out, from twenty to forty strokes of the pump.

Of course, before wrapping up the tires they should be thoroughly examined for exterior cuts and every hole filled up with strong solution. When the tires are dismounted it is a wise plan to minutely examine the rims, clear up and repaint any rusty portion, and file down any sharp edge which might cut the tire. It is advisable also to revarnish the rims every time the tires are dismounted, in order to keep out the all-destroying damp. Another and final hint: when the tires are off, never leave the rims in contact with the ground. Always jack up the car in order to isolate the metal from the dampness of the earth.

SOME POINTS ABOUT PUMP FEED OILERS.

On account of the economy of space, it is the rule on pump feed lubricators, to place the pumps, which may vary in number from one to ten or twelve or even more in a row and in a vertical position. Each pump is positively driven from an overhead rotating shaft by a yoke, eccentric or equivalent device, in some cases the shaft extending through a stuffing box in the wall of the casing and being driven by suitable means, or else geared to a second shaft so as to obtain a reduction of speed. Where there are not too many pumps, a single yoke is sometimes used to move all the plungers simultaneously; in a lubricator where there are many pumps they may be divided into groups, each group operated by a single yoke and the eccentrics which operate the yokes are set at equal intervals on the shaft, like the cranks of a multi-cylinder engine. Another way is to have a separate eccentric for each pump, direct connected to the plunger rod, or, as in the instance mentioned, working the plungers through a yoke. A plan of driving that has found a wide use is to raise the plungers mechanically, as by a cam, against the pressure of a spring, and then release the plunger and allow it to be forced back by the pressure of the spring. The pumps, it may be said, are of the single-acting type, drawing oil into their cylinders on the up stroke and forcing it to the bearings by way of the feed pipes on the down stroke. The plungers are solid and are fitted with extreme care to the long cylinder bores, so as to give an ample bearing area. The ports are simple passages in the casting in which the bore is formed, and when valves are used they are simple check valves consisting of little balls of steel or bronze seated in the ports, some being pressed to their seats by springs and others being sufficiently held by gravity and the pressure of the oil.

November 14, 1896, is called Emancipation Day by English automobilists, as it commemorates the passing of an Act of Parliament which granted to automobiles a right to the highways.

LETTERS INTERESTING AND INSTRUCTIVE

A Subject That Admits of Discussion.

Editor THE AUTOMOBILE:

[474.]—What is the difference in the efficiency of high and low compression engines? For instance, to take three cylinders of a given bore, and a compression in the first one of sixty-five pounds, in the second one hundred and fifty pounds, and in the third two hundred and fifty pounds—if it is possible to compress that high. What in pounds would be the explosive force in each of the three cylinders at the time of ignition? How much more economical in fuel consumption is the two hundred and fifty pounds over the sixty-five pounds? How high can you safely compress a good mixture of gasoline and air?

Ormond, Fla.

CARL WILMERDING.

While there is no doubt about the higher efficiencies that come with higher compression, the possible reasons for this increase in efficiency are so numerous that the subject is wrapped in much obscurity. The reduction in the wall space in contact with a given charge weight, increased completeness and quickness of combustion, more rapid expansion of the charge and reduction in the volume of retained exhaust gases are probably among the more important of the factors that apply. Theoretically, there is no reason why an uncompressed mixture should not be so burned as to give up the full mechanical value of its heat units as well as a compressed mixture. We know of no exact data on the comparative efficiencies of the different compressions you specify, and it is impossible to figure these out on paper. Perhaps some reader can supply the desired information, in which case we shall be pleased to publish it. While the efficiency increases, with compression increase, the rise in explosion pressure does not rise in proportion, but tends rather to be maintained longer. The Diesel engine, which has the reputation of being one of the most efficient motors ever built, compresses pure air to 550 pounds to the square inch. The mixture in a gasoline engine cannot be compressed to much higher than 100 pounds without danger of preignition.

Redesigning the Spring System.

Editor THE AUTOMOBILE:

[475.]—I am not satisfied with the springing of my car, which is an out-of-date model of an excellent make. The rear seats are so far back that the weight of them loaded is practically straight over the rear axle, and the construction of the car is such that I cannot very well use longer springs. I have tried rubber bumpers or cushions and supplementary springs, but while they seem to prevent some of the bouncing action, they do not supply the degree of comfort that I find in other cars. Would it improve the spring suspension if I removed the rear-spring hangers and attached the rear ends of the side springs to a half-elliptic cross spring, so as to secure the platform-spring effect? The rear ends of the side springs are just far enough back of the rear cross-bar of the frame to allow them to be attached to a cross spring supported at its middle by a stout bracket on the frame cross bar.

Peoria, Ill.

C. D. PURVIS.

Without knowing more of the details of the construction of your car, especially in reference to the transmission system, it is difficult to advise changes with the assurance of their being perfectly applicable. The best road out of your difficulty, however, would seem to be a lengthening of the frame and the wheelbase, so as to distribute the load between the two axles. This, in turn, would involve a lengthened propeller shaft or chains, and might cost more money than you would care to expend, unless you have a very valuable car. The use of the cross spring as you suggest it will undoubtedly help matters materially, but would be still better if applied in combination with a broadening of the spring leaves. If you will use broader spring leaves, but not any thicker than you are using now, the result will be better than could be secured even with longer springs.

An Undesirable Complication.

Editor THE AUTOMOBILE:

[476.]—I have an idea in mind and would like to ask if you think it is worthy of merit. It is a double-acting steering gear. Some serious accidents have been caused by the breaking of the distance rod which connects the two steering knuckles. The appliance I have in mind is a double gear, composed of two distinct rods, one of which may become detached or broken without affecting the safety of the occupants of the car, as either one will perform the work. With the steering gear commonly used, nothing but the interposition of Providence could prevent an accident, as, if the car were going at a high rate of speed it might be ditched before the operator had time to locate the trouble. Hoping you will consider the above and reply through the columns of "The Automobile," I remain,

Salem, Mass.

HENRY A. CURRIER.

The construction you propose is not new, having been patented in several forms, and even used on a few cars. One objection to it is that the angles for forwardly-extending and rearwardly-extending pivot arms cannot be made the same to secure best results, with the result that your two drag links would so oppose each other's working that one of them would spring or buckle. A more serious objection is the complication, which is less necessary than you have assumed it to be. One drag link made right as compared with two drag links made wrong might be viewed as analagous to the case of placing eggs all in one basket and watching that basket, weighed against the policy of placing the eggs in different baskets, policies concerning which there is a diversity of opinion. The old adage has it that the latter rule is the better, but Andrew Carnegie has gone on record by declaring that he made his millions by observing the other system. Of course, if you propose to place both links in front of or behind the axle, you will avoid one of the objections just urged, but is it not a fact that the only breakage of properly-made drag links occurs from striking objects that would be almost equally certain to bend any number of links that could be practicably opposed to them? And, if it is a question of flawed or doubtful material, is not the risk just about as bad, no matter how many links you use? Without attempting to be dogmatic on a subject concerning which there might be a very legitimate difference of opinion, our own experience, apparently upheld by that of the majority of manufacturers, is that the idea presents objections not offset by its possible advantages. We shall be pleased to give space to any further arguments on either side of the question, which is an interesting one, and may be further discussed to advantage.

A Case of Tests, Not of Formulas.

Editor THE AUTOMOBILE:

[477.]—Can you give me the formula for figuring the loss of power between the engine and the rear wheels? The power of this particular car is transmitted through a sliding gear transmission and a bevel gear shaft drive. For example: Supposing I have a car developing 40 horsepower on the stand, how much of that power will I have when it is transmitted through the transmission and shaft drive? In other words, what I want is the formula for figuring the loss of power so I can find out how much horse-power I have at the driving wheels.

Jackson, Mich.

C. W. SMITH.

It is impossible that there should be any invariable formula for figuring the losses of power in the transmission of any car. There are transmissions, with direct-chain or spur-gear drives, and some of them in very poor cars, which deliver as much as 95 per cent. of the engine's power at the rear wheels. There are others, among them some of the very best cars made, that transmit no more than 50 per cent. of the engine's power to the wheel, the loss of power being considered much less important than the other advantages that are gained.

Much also depends upon the condition of the transmission. For instance, a single chain connecting two sprocket wheels, with the whole system new and clean and well oiled, may transmit 98 per cent. of the power applied to one of the sprockets, while if worn, dirty, or dry, it probably will not be half as efficient. According to some tests recently made on a Peugeot car in France, driving by double chains and fitted with annular ball bearings throughout, 75 per cent. of the engine power was realized at the rear wheels. With a bevel-gear drive, a slightly more efficient result should be secured, all other conditions being equal. It must be considered, however, that the test referred to was probably made under exceptionally favorable laboratory conditions, which no car would achieve on the road. Much less importance really belongs to this subject than has been placed upon it, because it is universal practice with automobile manufacturers to overpower their cars so that the full power is rarely required at the rear wheels, even if it were possible to transmit it to them. From a brief study of the section on horsepower in any engineering work you will readily appreciate that the amount of power capable of being utilized to drive a car is not that capable of being developed by the engine, nor even that transmitted to the rear wheels, but is strictly the amount capable of being transmitted between the rear wheels and the ground, considering these factors as elements of a friction-drive device, of a given tractive adherence and speed of working. You will be surprised to find that the points beyond which the wheels must slip absolutely prevents more than 8 or 10 horsepower, at a very maximum, being applied to the work of driving an average touring car at ordinary speeds. These figures have been substantiated by careful tests and continued practice.

ONLY FAIR PLAY FOR AUTOMOBILISTS.

Editor THE AUTOMOBILE:

[478.]-In formulating new automobile laws, which will surely be presented to the different legislatures the coming winter, whether automobilists desire them or not, there are two important clauses which they have a reasonable right to ask for, based upon even-handed justice and fair play. The first is, that all speed limitations shall apply to all vehicles alike. And the second is, that in all convictions for exceeding speed limitations, the extent of the endangerment of the public safety at the time the arrest was made shall be taken into consideration in fixing the fines for such offense.

This would effectually put a stop to the notorious "hold ups" on lonely country roads, where there is no human being in sight, the crafty officers being hidden in the bushes like veritable highwaymen, and protecting the public safety in an absurd pretense. These over-zealous officers are actuated by their chances for a share in the "graft," in the name of "costs," and they frequently set their traps at the foot of a hill, as in Leicester, to insure the capture of their game. This sort of highway robbery under the guise of law, ought to be stopped, and it does not seem possible that any honorable or self-respecting legislator would vote to continue it. It mars the pleasure of automobile touring to the most careful and steady-going automobilists, who are just as liable to be "trapped" as the most reckless driver on the road.

When an automobilist actually endangers the safety of the public, he ought to be arrested and fined, and a very large majority of car owners would heartily approve of such a law. But to arrest harmless automobilists who run into these traps, and fine them for imaginary endangerment of the public safety, merely to rob them of their money, is a disgrace to the name of law.

Springfield, Mass.

M. H. R.

BELIEVES IN THE PRINCIPLE OF THE CHRISTIE.

Editor THE AUTOMOBILE:

[479.]-Referring to Letter No. 449 in a recent issue answering "Why Automobiles Are Overpowered," I would put forward the following proposition: Take, for instance, a baby carriage and try to push it over an obstruction, and you can hardly do so. Now catch the same carriage and pull it by the front axle, and you will note you can do it with ease. Horse-drawn vehicles have the horse in front and not behind. They are pulled and not pushed, like an automobile. If automobiles were pulled we could dispense with some of the power.

Corsicana, Texas.

CLARENCE THOMAS.

LONG JOURNEY BY A SIMPLICITY TOURING CAR.

Editor THE AUTOMOBILE:

[480.]-A long-distance journey that I should like to have noted is one I made recently for the Evansville Automobile Company, of Evansville, Ind., to New York City, during which trip I drove one of that concern's Simplicity touring cars, starting from the factory door. I made this run by way of Terre Haute, Indianapolis, Columbus, Dayton, Pittsburg, Harrisburg, and Philadelphia. This car is driven by double balanced friction transmission, which pulled the car through roads hub deep in mud. I encountered terrible roads in crossing the Allegheny Mountains, due to the very heavy rains. During the entire trip, which was accomplished in seven days running time, the engine did not miss a single explosion. The machine is easy on tires, as is shown by the fact that they still contain the air pumped in at the factory.

Phoenixville, Pa.

LOUIS F. RHOADES.

A DIFFICULTY AND A SUGGESTED REMEDY.

Editor THE AUTOMOBILE:

[481.]-We notice in the November 8 issue a letter from Mr. Preston, in which he says, "The clutch has been slipping badly of late and I have tried the application of all the substances of which I have heard to prevent this," etc., which leads us to suggest that Mr. Preston try Cork inserts in his clutch. They can readily be inserted in the usual leather faced cone at small expense and we will be glad to give him the necessary authority and instructions on receipt of his request therefor. That Cork inserts will cure the difficulty is evidenced by the fact that the George N. Pierce Company, the Garford Company, and more than a baker's dozen of other automobile manufacturers will so equip their clutches in 1907.

NATIONAL BRAKE & CLUTCH COMPANY,

Boston, Mass.

Per Lawrence Whitcomb.

CRAWFORD WAS THE LUCKY BRESLIN WINNER.

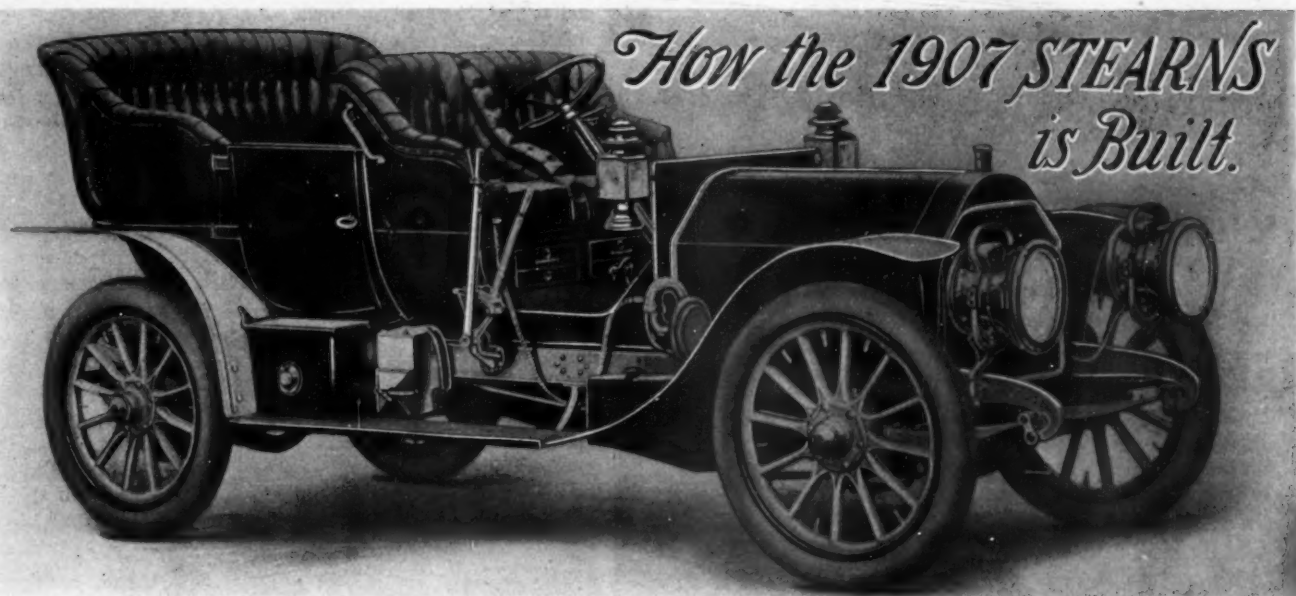
Representatives of many of the leading exhibitors of the Grand Central Palace show were entertained last week, Thursday, at a luncheon at the Hotel Breslin, New York City, which is a favorite stopping place for members of the automobile trade in general. Each year a drawing takes place of show exhibitors, the winner having the privilege of exhibiting a car in the lobby of the hotel during show week. The Crawford was the lucky winner, with the Rainier second choice, and the American Mercedes third in case the first named does not seize the opportunity. G. T.

Stockham was the host, and T. H. Hildreth the toast-master, and the souvenirs were ash trays containing an illustration of the hotel, a reproduction of which is shown above.



HOW IT IS WORKED NEAR ALBANY.

Automobile owners of this city will be found supporting the bill which is to be introduced in the legislature in January, which may be termed the anti-rural graft bill. In Colonie, which is a town of Albany's northern boundary, are traps set and operated by prominent men of the town for the purpose of mulcting all autoists they can catch. One is a supervisor of the town, and it is said that to one individual of the auto-hold-up gang the sport has netted a revenue of no less than \$3,500 this year. Across the river, in the county of Rensselaer, out near the top of Clinton Heights in the town of Schodack, a trap has been set with electric button and stop-watch attachments, and so well worked that C. S. Ransom, who ran out to intercept the participants in the New York Motor Club's economy test last week and warn them of the trap, was himself captured and fined \$25.



NEW MODEL STEARNS TOURING CAR FOR 1907 WITH SPECIALLY FLEXIBLE 30-HORSEPOWER MOTOR.

STYLES change, and therein lies the chief reason for a new model in 1907 of the Stearns car, say its makers, the F. B. Stearns Company, of Cleveland, O. In changing the style, the Stearns people have embodied many refinements that will be appreciated by their customers, and one improvement upon which particular stress is laid is the extreme flexibility of the power of the motor, which is normally 30 horsepower, but which, it is asserted, will work perfectly at 3 horsepower in crowded streets without danger of stalling, and will deliver with equal perfection 60 horsepower on hills and in hard going. The motor, while larger and more powerful than last year's model, is shorter by reason of using ball bearings throughout, the hood is correspondingly smaller, and the addition of the dash brings a harmonious relation of body and motor that still further dwarfs the hood.

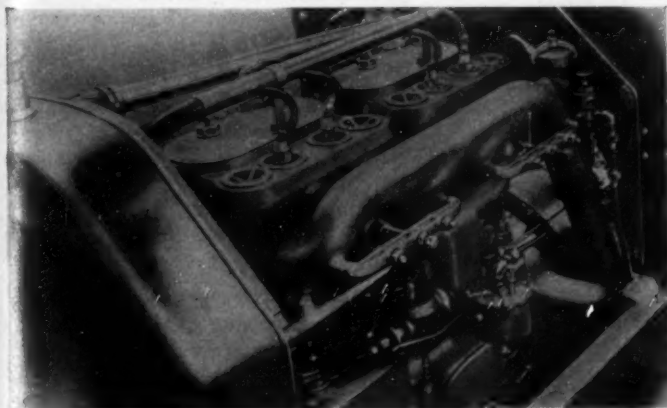
All running bearings in the new Stearns are mounted on D. W. F. ball bearings. Those in the engine are so arranged that shaft and bearings together can be slipped out of the end of the crankcase for inspection, and in like manner the camshaft comes out with its bearings complete. The half time or camshaft pinion also removes easily without dismounting anything. The oiler and high tension magneto drive from the camshaft by gears, as does the commutator, and all are inclosed. The pump, gear-driven off the "half time" pinion, is equally designed with a view to reliability and accessibility.

The radiator is separate from its protective housing, which is removable. Ignition is by jump spark from high tension magneto. Carburetion is effected by a single float chamber, with a simple small automatic carbureter in the rear, and a large auto-

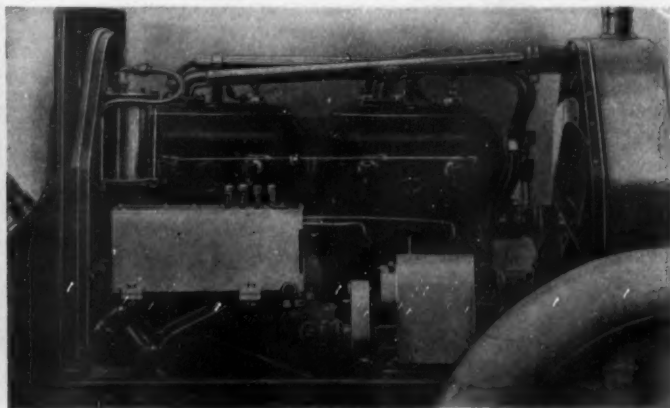
matic carbureter in front. A single control rod runs through both, but leaves the larger closed until the smaller is wide open, further motion of the rod holding the small one open and gradually opening the big one, to its limit if desired. By this double use of carbureters the manufacturers of the Stearns declare that they have solved the problem of flexibility of horsepower in their driving mechanism, and made the use of high horsepower a comparatively easy matter, as they have produced a method of making power only as needed and on the instant.

The frame is of pressed steel with side rails 5 1-6x2 3-16 section, each cross brace combining its functions with those of supports for the transmission, tanks, muffler, guards, running boards, etc., affording an economical feature in use of parts. The chief peculiarity of the frame is the construction of the front ends to permit a form of spring shackle. The springs used are semi-elliptic, 2 1-2 inches wide and very long (front 40 inches and rear 50 inches), with but very few leaves. The front springs are fast at their rear ends and shackled at the front ends—a part of the steering gear feature. Axles are of nickel chrome steel, I-beam, hand forged from single bar, and the spring platforms are formed integral. As the drive is by double chain, the rear axle is solid and made in the same manner as the front one. The wheel base of the standard model is 120 inches. The wheels are 36x4 in front, and 36x4 1-2 in the rear.

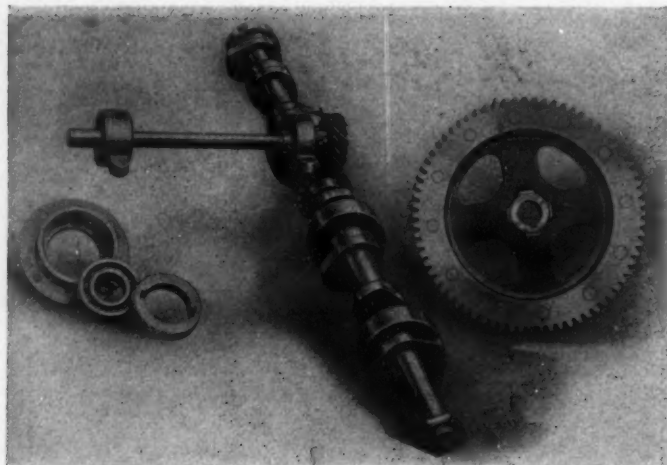
The radiator is of the flat tube type, with one-third more radiating surface than is normal for the motor under full load. Over it is placed a cast aluminum housing resting on the side rails of the frame, said housing being removable by the removal



VALVE AND CARBURETER SIDE OF STEARNS MOTOR.



RIGHT SIDE OF MOTOR, SHOWING MAGNETO AND OILER.

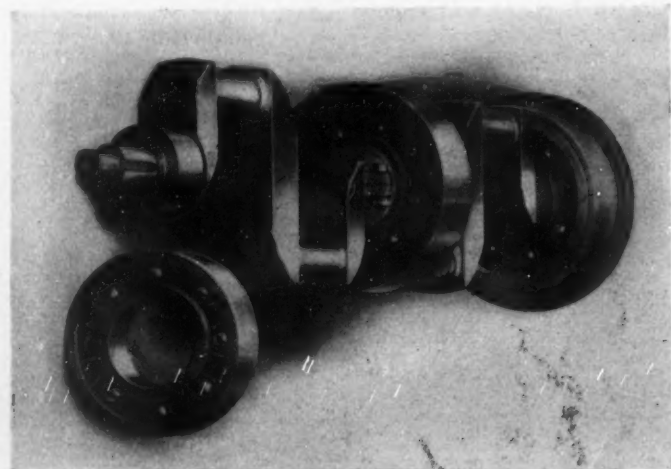


STEARNS CAMSHAFT THAT RUNS IN ANNULAR BALL BEARINGS.

of four nuts. The fan is ball bearing and driven by a continuous belt with adjustable tension. The flywheel of the motor is of the fan type, assisting the air circulation.

The motor is of the vertical four-cylinder type, 5 3-8 bore by 5 7-8 stroke, rated at 60 horsepower. Crankshaft and camshaft are fitted with ball bearings as noted above. The crankcase is cast in one solid piece, and the cylinders are cast in pairs. The necessary parts in the cylinders are so designed that every part of the water jacket can be reached and cleaned. This construction, it is claimed, is original with the Stearns. The valves are exceptionally large and the springs interchangeable, and are so built that the removal of one nut releases any pair of the cam rollers and plungers, which lift out complete, giving access to the valve springs, and a simple replacement, it is claimed, brings absolute adjustment. A similar device holds the exhaust and inlet piping in contact (by ground joints) with the cylinders, so that a few turns of the wrench will expose the valves for inspection. The piping is of a size consistent with the large valves.

The clutch is flat faced, expanding outward inside the rim of the flywheel, with no end thrust, and is easily accessible. The connecting shaft from clutch to transmission is a new feature of the Stearns, being formed of tubing of large diameter, but comparatively light, with jaws at each end which fit the corresponding members like large gear teeth to allow for flexibility of frame. This part is laid into place by hand, a collar slips over each end, and the job is completed. Transmission is of the selective sliding gear type, four speeds forward and one reverse, the shafts being chrome nickel steel and mounted on ball bearings. The transmission shafts are unusually short, but the gears have exceptionally long bearings on same. The emergency expanding

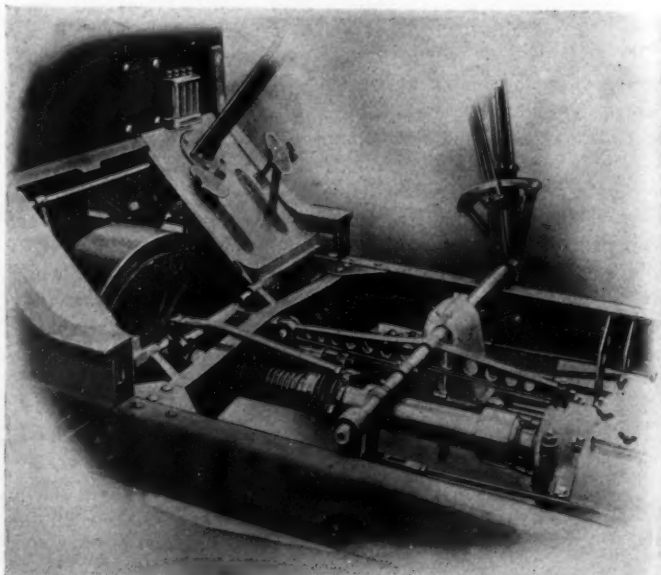


THE CRANKSHAFT WITH ITS BIG BALL BEARINGS.

brakes are very powerful, being 14 1-2 inches in diameter by 2 5-8 inches in width, as is the external band brake, which is 11 inches in diameter by 3 1-2 inches in width. The latter is not interlocked with either the clutch or other brakes. Gasoline is carried in a twenty-six-gallon exhaust pressure tank, regulated from the dash, which feeds a tank, of about 2 quarts capacity, placed under the hood. The lubrication system is positive feed, gear driven oiler located at right side of motor.

Another feature of the Stearns car, upon which its makers make strong claims, is safety in steering. The front springs are shackled at the front ends and made fast to the frame at the rear ends. By this method half the rear springs act as a distance rod to maintain the relation between the wheels and the steering column, the perpendicular motion being a negligible quantity. By this method it is asserted that the variations from rough going and sudden jolts are reduced by 75 per cent.

The standard equipment is a double side-entrance body, seating three in rear and two in front, and folding door seats will be supplied if ordered. Wherever possible cast aluminum is used in the construction. The equipment consists of a full set of lights and generator, horn, tools, etc. The color is optional. The tires are 4 x 36 front and 4 1-2 x 36 rear, with option on the make desired. The car sells for \$4,500.



VIEW UNDER THE FOOTBOARDS AND FRONT SEAT.

AUTO FIRE ENGINES IN TWO CITIES.

NEW HAVEN, CONN., Nov. 19.—In their estimates for an appropriation for the coming year, the board of fire commissioners of New Haven have asked for an automobile for the use of Chief Rufus R. Fancher, of the fire department. Heretofore the chief and all of the fire officials have used horse-drawn vehicles in responding to alarms of fire and on their official business. Owing to several narrow escapes while responding to alarms recently, Chief Fancher has decided that an automobile is far safer for this work, as it combines both greater speed and ease of control.

Another city department which has asked the board of aldermen for an automobile is the police department, who have decided to discard their present ambulance and install a more up-to-date motor-driven vehicle.

WILMINGTON, DEL., Nov. 19.—This city may soon have some horseless fire apparatus. Several companies have recently purchased new engines, drawn by horses, but there are several others with an old apparatus which, it is understood, contemplate making a change, and the fact that they have not done so leads to the belief that they contemplate buying automobiles.



AN entirely new design, possessing many features that will commend themselves to the discriminating automobilist, has been produced by the Wayne Automobile Company, of Detroit, Mich., in the Wayne Model N for 1907. Chief among the features of the new car is the placing of the transmission on the rear axle, making the change-gear box an integral part of the bevel-gear housing with the object of insuring correct relative positions of gearing under all conditions. The gear shift is selective, interlocking with the clutch rocker in such a manner that no shifting of gears is possible while the clutch is engaged. The universal shaft is 1 1/4 inch solid steel, 36 3/4 inches long, with universal joints, self-oiling and dust proof. The great length of the propeller shaft, made possible through placing the transmission on the rear axle, gives an exceptionally low angle on the propeller shaft, which is only 2 1/2 degrees maximum, and nothing with a normal load when the car is standing. The long universal shaft is jointed to the line shaft of the gear box, the side shaft being directly below the line shaft.

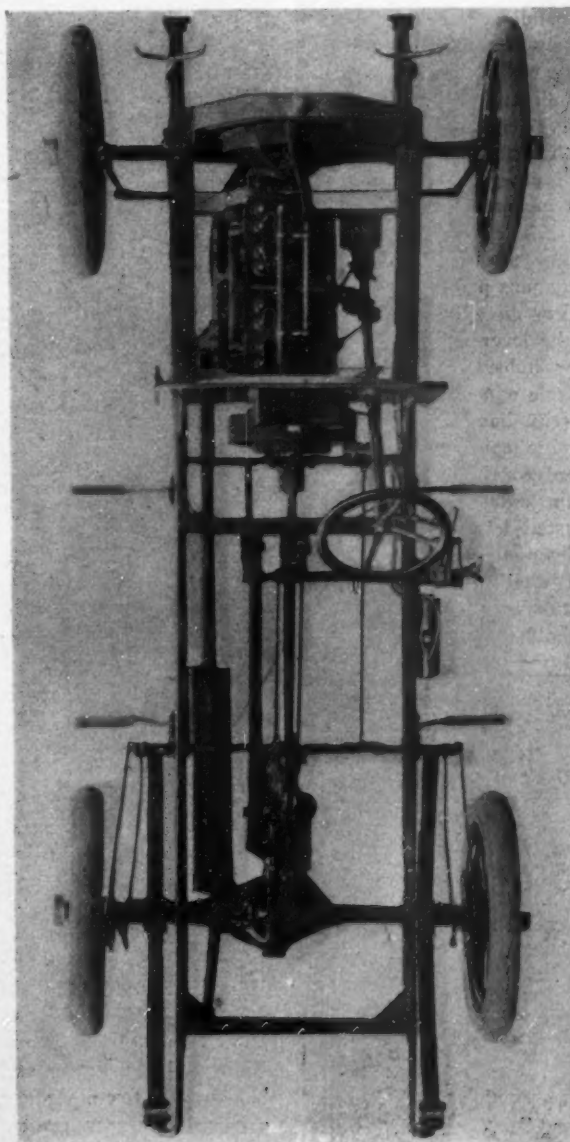
The motor, like practically all the other features in the car that command attention, is a Wayne design. The cylinders are gray iron dual units, with integral water jackets. The valve seats are integral with the cylinders, long flanged wrought steel valve stem guides being pressed into seats in the cylinders. The pistons have three snap rings above the pin, are not recessed at the pin and have three oil grooves below the pin. The pins are solid steel, one inch in diameter, hardened and ground, and fixed in the rod

ends with tilt-screws wired to retain them. The valves, all placed on one side of the cylinders and mechanically operated from a single camshaft, have nickel-steel heads, electric welded to

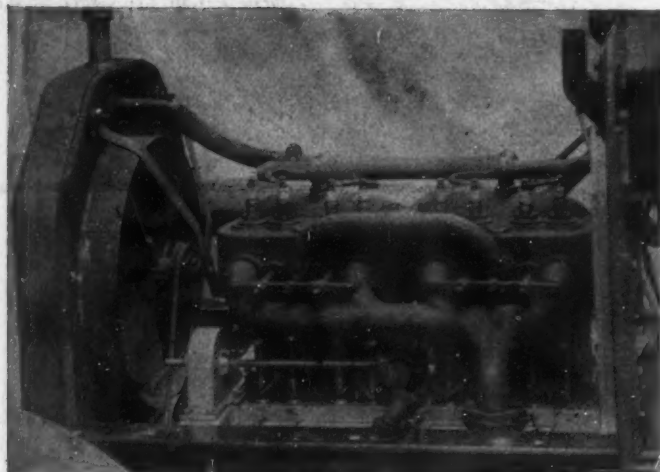
machine steel stems. The cam rollers are in forked lifters, having pins driven through and ends projecting above the roller forks to enter slots in the flanged lifter guide bodies. The cams are applied to the camshaft and retained by Woodruff keys and pins. The rods are steel drop forgings, 1 1/2 inches c. to c., marine type, with Parsons' white bronze half boxes, flanged and pinned at the wrist ends. The caps are held on with two studs, hex nuts, and split pins. The crankshaft is machine steel, ground, the journals and wrists being 1 7/8 inches in diameter. The crankshaft gear is steel, applied, and the camshaft gear gray iron, all inclosed in the crankcase and run in oil. The flywheel is gray iron, internal clutch drum integral, fixed with six bolts to the integral crankshaft flange. The inside diameter of the flywheel is 10 inches and it has a 3-inch internal face.

An efficient radiator, the Wayne company's own design, it is asserted, will insure against the water boiling under any conditions. It is 3 inches in thickness, and contains 125 vertical 1/4-inch tubes, passing through 120 thin copper plates, hemmed on the front edge only. Water circulation is secured by a gear-driven two-pinon pump.

The clutch is a plain internal cylindrical drum, integral with the flywheel. The coasting internal shoe is pivoted at the leaving drum surface end and lever expanded at the drum meeting end, the torque thus tending to engage the clutch. The short end of the



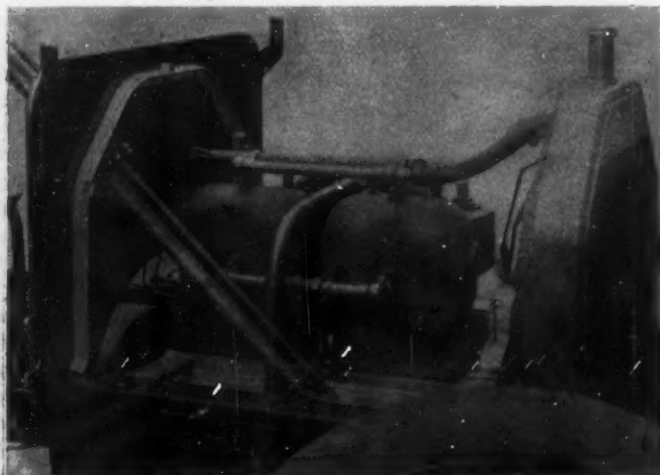
HOW THE NEW WAYNE CHASSIS LOOKS FROM ABOVE.



INLET AND EXHAUST SIDE WAYNE MODEL N MOTOR.

clutch shoe lever is linked to the shoe at its free end by an eye having a threaded body tapped into a short revoluble round pin in the short arm of the lever, making adjustment of the length possible by disconnecting from the shoe. An elastic steel band with fibrous facing forms the internal brake shoe. A ten-pound spring working in the direction to apply the clutch influences the long free end of the clutch shoe expanding lever, the torque expanding the shoe and the spring merely keeping parts in place. The clutch is disengaged by a sliding wedge working on the clutch shoe lever body. Selective type, sliding-gear transmission, giving three speeds forward and reverse, is employed. The gears are chrome nickel steel, hardened, teeth eight pitch, short. The change-gear housing, as already noted, is integral with the bevel-gear housing, oiling being effected by means of an oil pool in the bottom of the housing. The gear shift lever works in an H slot, is fixed to a sleeve rocker carried on the brake rocker, and has fixed to its inner end an arm having pins projecting on each side of the arm free end, which engage or disengage the shifting rod eyes according to the position of the lever in the slot plate.

Four brakes are placed on the rear hubs. The brakes are exterior Raymond type and internal toggle expanding, on and in a pressed steel brake drum 12 inches in diameter and with a 2-inch face. The exterior emergency brake is operated by an outside hand lever which, when pulled to the rear, first disengages the clutch and then applies the external clutch bands. The exterior brakes have screw adjusted lever rods, with no eveners. The internal toggle brake shoes are worked through an evenner from the right hand pedal, which does nothing but apply the brake. Both sets of brake bands are faced with camel's hair felt, and either set is sufficient to hold the car.

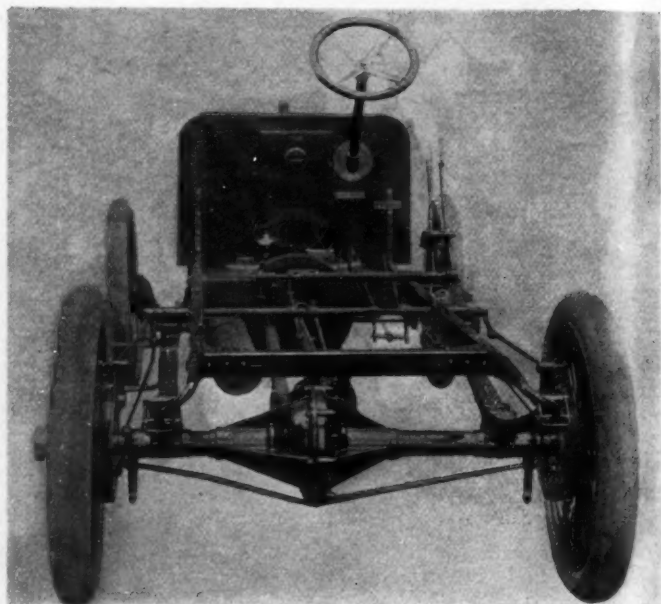


REVERSE SIDE WAYNE MODEL N MOTOR.

Steering action is by means of an exterior right hand thread and interior left hand thread, integral with the steering shaft at its lower end. This action is absolutely non-reversible, and exceptionally powerful. The thrust is taken by ball bearings, adjustment of the ball bearing cone eliminating all lost motion from the steering action. Spark and throttle control is by a concentric rocking sleeve and central solid rocker at left of steering post, the handles being retained by two notched segments.

The chassis frame is 3 1-16 inch of pressed steel, with drop forged spring eyes. No sub-frame is used, the four lugs of the motor base being flanged to hang on top of the side frames and being retained by horizontal bolts. The length from front spring eye to rear link eye is 148 1-2 inches, the width 32 inches, and the greatest depth of the frame side 4 inches. The front cross member is of channel iron, dropped 5 1-2 inches to support the radiator. Suspension is by means of semi-elliptic springs, the forward ones, with six leaves, being 38 inches long and 2 inches wide and the rear, with seven leaves, being 5 x 2 1-4 inches.

The front axle is a steel tube body, 2 inches outside and 1 3-8 inches inside, with drop forged steel yokes and steel casting spring perches, pinned and brazed to the axle tube, which is

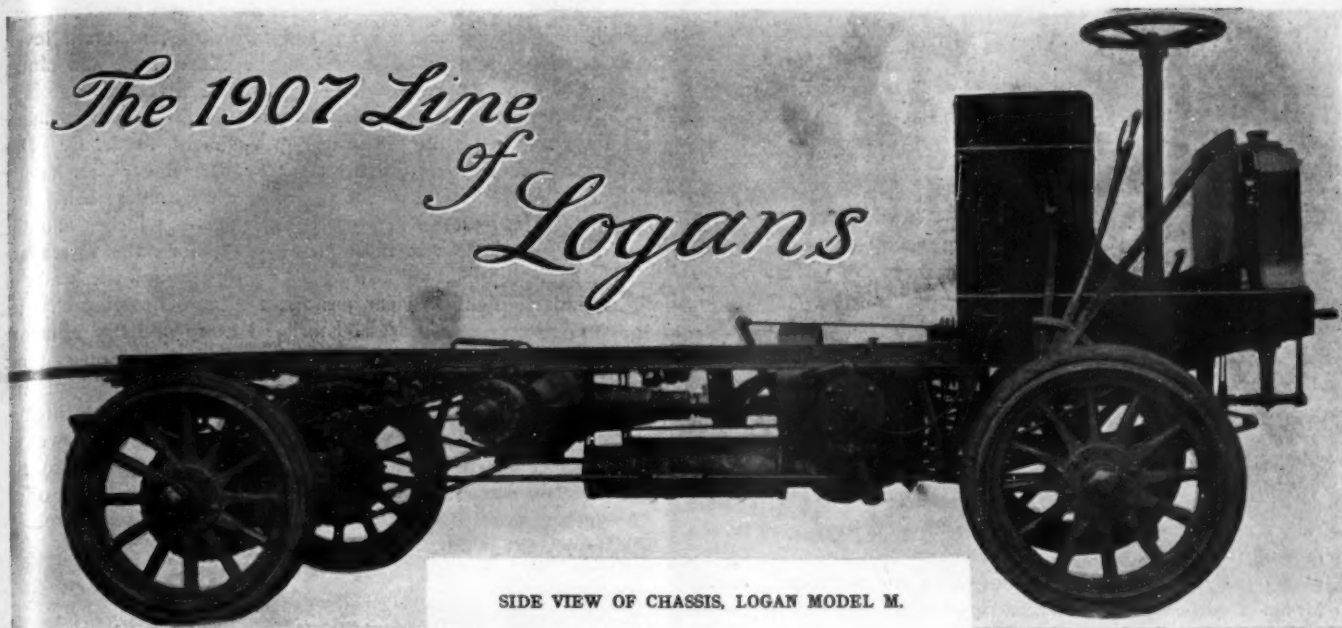


END VIEW MODEL N CHASSIS SHOWING REAR AXLE.

dropped 3 inches in the middle. The knuckle pins are steel, hardened and ground. Integral steel drop forgings form the stub axles and arms, with hardened and ground pin-bushes, spring oilers in top ends and hex nut and split retention. The rear axle is built up of steel tube flanges and three pieces of aluminum castings, the flanges being pinned and brazed to the steel tube lengths, and the aluminum gear casing and balance-gear housing are bolted to the steel tube flanges. The third piece of aluminum is a casting covering the front openings in the change-gear box and bevel-gear housing integral aluminum casting. The body is of the new straight-line type, and is metal, being made of steel and aluminum. The price is \$2,500.

Everything entering into the construction of Model N is of exceptional character, and the makers have evidently spared no expense in producing in their new model of the highest class. In addition to the Model N, which will be its leader, the Wayne Automobile Company also makes two other types of cars. One, known as Model R, is a 50-horsepower, seven-passenger car with Pullman body, listing at \$3,500. The other, Model K, is a 35-horsepower, five-passenger car, listing at \$2,500. Both are shaft-drive, sliding-gear, transmission being placed on the frame. In wearing qualities and appointments they are in keeping with the high standard established by the Wayne.

The 1907 Line of Logans



SIDE VIEW OF CHASSIS, LOGAN MODEL M.

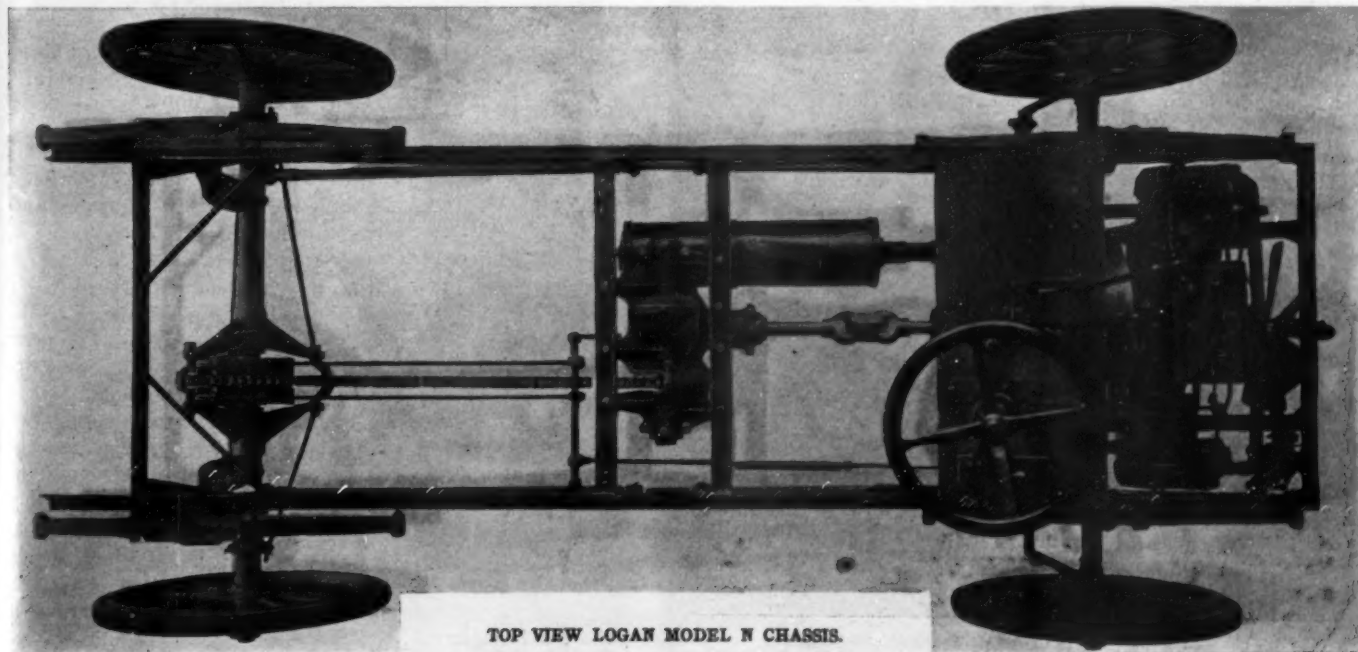
THREE models will constitute the line of gasoline cars manufactured for the season of 1907 by the Logan Construction Company, of Chillicothe, O., ranging in horsepower from 10 to 30, and in price from \$1,000 to \$2,500. The smallest car, Model N, is a light delivery wagon with 10-horsepower double opposed air-cooled engine in front and a screen-side, panel or platform body; Model O is a high-powered runabout, or, as the manufacturers call it, a semi-racer, with four-cylinder air-cooled motor of 20-24 horsepower, costing \$1,500; and Model M is another commercial vehicle with 30-horsepower double-opposed water-cooled motor and body of optional style, its carrying capacity being 6,000 pounds. The factory will turn out 550 cars for 1907—400 of the little light Model N delivery wagons, 100 semi-racers, and 50 Model M three-ton trucks.

The big machine of the line, Model M three-ton truck, is strongly built throughout, but nevertheless weighs only a trifle more than half its rated carrying capacity, or 3,100 pounds. Placed crosswise on the frame just back of the driver's seat, the double opposed horizontal motor is easily reached for adjustments and inspection and is carried on the main frame members.

The inlet valves are of the automatic type and the exhaust valves, of course, mechanically operated. The cooling system includes integrally cast water jackets, radiator in the usual front position, and a fan behind the radiator. Ignition is by jump spark, the current being supplied by a storage battery, with a set of dry cells installed as an auxiliary. Carburetor is of the float feed type and lubrication by mechanical oiler driven by a silent chain.

From the motor power is transmitted through a contracting band clutch, operated by a pedal, to a specially-designed bevel gear change-speed mechanism giving two speeds forward and one reverse, so arranged, the makers state, as to give a direct drive on all speeds. Owing to this construction it is unnecessary to unclutch when changing gears—no small advantage in a commercial machine used in crowded streets. From the change-speed gears a countershaft extends laterally, carrying sprockets from which the side chains extend to the rear wheel sprockets.

Heavy angle steel is employed for the framing of the chassis, and on this can be placed a commercial body of any desired type. The wheelbase is 108 inches and the tread the standard, 56 1/2



TOP VIEW LOGAN MODEL N CHASSIS.



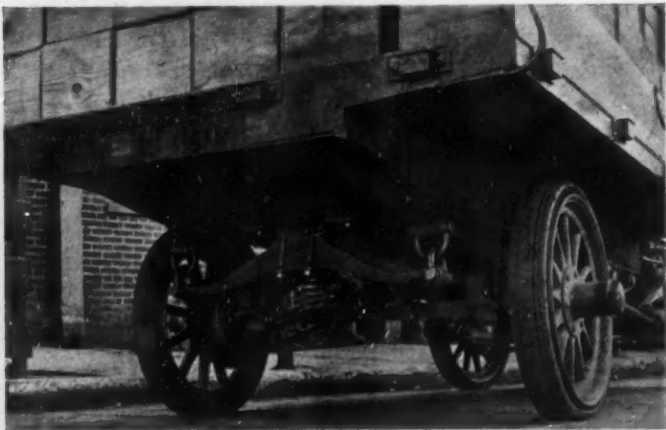
LOGAN MODEL O, SEMI-RACER RUNABOUT.

inches. Wheels are all 32 inches in diameter, and are all shod with 4 1-2-inch Swinehart solid rubber tires. Rear springs are arranged in platform style and the front springs are full elliptics. Steering is by worm and gear and brakes are contracting bands.

Model N is the light commercial rig—suitable for delivery work of any kind that will not require a lading of more than about 1,200 pounds. The engine is of the double opposed air-cooled type, and is placed in front under the oval hood. The air-cooling system is a special feature, means being provided for both external and internal radiation and convection. The cylinders are fitted with copper flanges nested into each other to insure contact at all times. Inside the pistons are radiating spikes projecting inward, and the top of the crankcase is left open so that air can be drawn in and expelled at every stroke of the pistons, so that much heat is disposed of in this way that would otherwise have to find its way out through the cylinder walls. A fan blows a strong current of air against the cylinders. The valves in this engine are all mechanically operated and are all placed in a vertical position.

Drive is from the engine through a contracting band clutch to a two-speed and reverse sliding gear transmission with direct drive on the high gear, and from the transmission to the live rear axle by single chain. The shaft carrying the chain sprocket is a short countershaft inclosed in a housing which is an extension of the main gearbox, and the whole is suspended from steel cross-members of the frame. The shaft extending from the clutch to the transmission is fitted with a double universal joint. The transmission shafts are mounted on roller bearings.

Current for the jump spark ignition is supplied by a storage battery. The carbureter is a float feed device and lubrication is by mechanical oiler. The wheelbase is 90 inches and tread 56 1-2 inches. The wheels are 30 inches in diameter, front and rear, and are shod with 3-inch Swinehart solid rubber tires. All springs are full elliptics. Wheel steering is fitted with worm and gear mechanism. The two brakes are contracting bands.



REAR VIEW PLATFORM MODEL M SPRINGS LOADED.

The controlling levers consist of a center lever for controlling the change-speed gears, ignition and throttle levers, brake lever, also centrally located, as shown in the illustration, and clutch pedal. A choice of five different bodies is given.

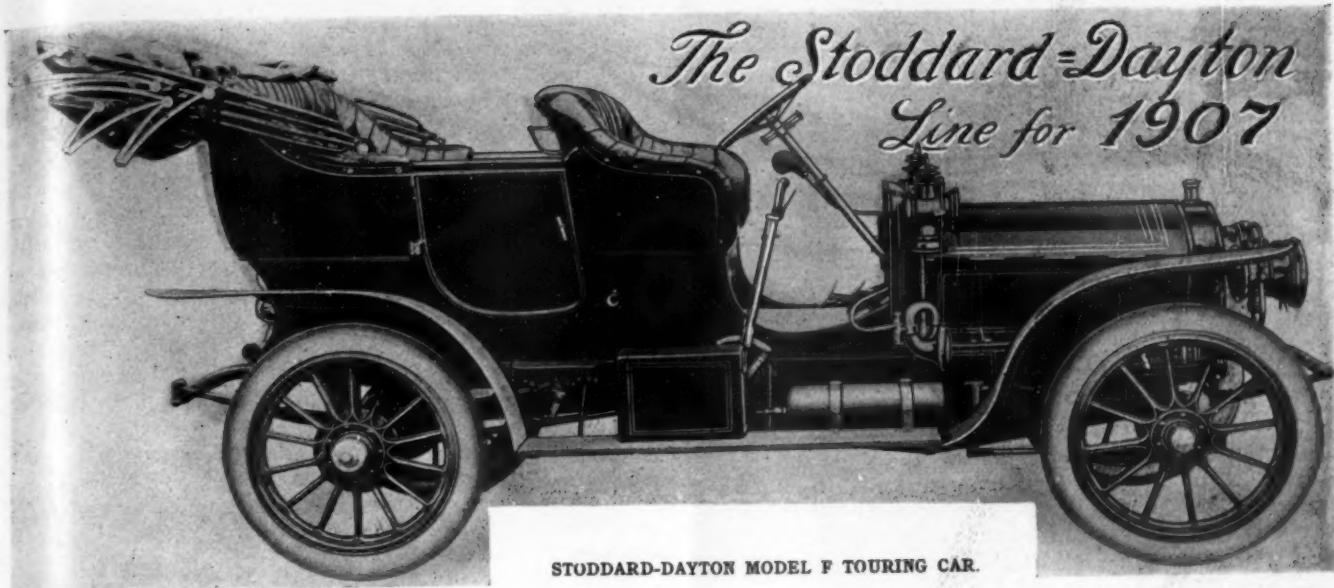
Only one pleasure car is manufactured by the Logan company for 1907, this being the semi-racer or runabout, Model O. This is of a different type from the two commercial vehicles, having a four-cylinder vertical motor in front, the cylinders being air-cooled by a fan placed in front. The bore is 4 inches and the stroke the same. As in most air-cooled motors, the valves are all mechanically operated and open directly through the heads of the cylinders, giving a clear passage for both incoming charges and outgoing exhaust gases. Storage battery and dry cells are installed to furnish current for the jump spark ignition system; a little lever on the steering wheel, of the usual type, controls the timing of the ignition and a similar lever regulates the throttle on the float-feed carbureter from which the engine draws its supply of combustible gas. Lubricating oil is distributed to the various frictional points of the engine by a ratchet-driven oiler. The motor is rated at 20-24 horsepower and is hung from a sub-frame; the main framing is of the pressed steel type.



LOGAN MODEL N, WITH SCREEN BODY.

The clutch is different from that of the commercial cars, being of the internal expanding type, with the customary foot-lever for controlling it. It is self-contained and self-adjusting, and, the manufacturers state, needs no relining. A special feature of the machine is that the change-speed mechanism is placed on the live rear axle and consists of a combination of bevels, pin gears, and sliding spur gears controlled by a side lever of the usual type. Drive from the clutch to the transmission is direct through a propeller shaft with one universal joint. There are two sets of brakes, all acting on drums on the rear hubs.

The body is, of course, of the runabout type, seating two persons, and has an unusually large box for carrying dunnage for touring. Fenders are long and continuous. Though the weight of the car is only 1,600 pounds, the wheels are 32 inches in diameter and are fitted with 3 1-2-inch tires. It is clear that the ratio of horsepower to weight is very large, which should make the car speedy and a good hill-climber. Both motor and transmission are quiet in operation. The wheelbase is 90 inches and the tread standard.



STODDARD-DAYTON MODEL F TOURING CAR.

LESS than two years ago the Stoddard-Dayton touring car glided noiselessly upon the scene of action and took immediate rank as a car of dependability. The cars are built by practical experts in a factory so thoroughly equipped that nothing is made outside, except tires and one or two such specialties as lamps and spark coils.

The touring car for 1907 differs in small degree from that of this year, there being the general refinements of progress, of course, and the condition that all 1907 Stoddard-Dayton cars are driven by Stoddard-Dayton motors. The motor is of absolute interchangeability, accurately machined, and with bearing lengths greater than mechanically required, a feature that prolongs the life of the motor. The motor has four vertical cylinders, cast in pairs, 4.5-8-inch bore and 5-inch stroke, with water jackets around each cylinder and all valves. The cylinders are bored, ground and lapped. Inlet and exhaust valves are on opposite sides and mechanically operated from camshafts running inside the crankcase. The crankshaft runs in nickel babbitt boxes, all hand scraped. All bearings are placed in the upper half of the aluminum crankcase. The lower half is the oil pan. Adjustments of the main engine and crankshaft end of the connecting rods are made by means of brass shims.

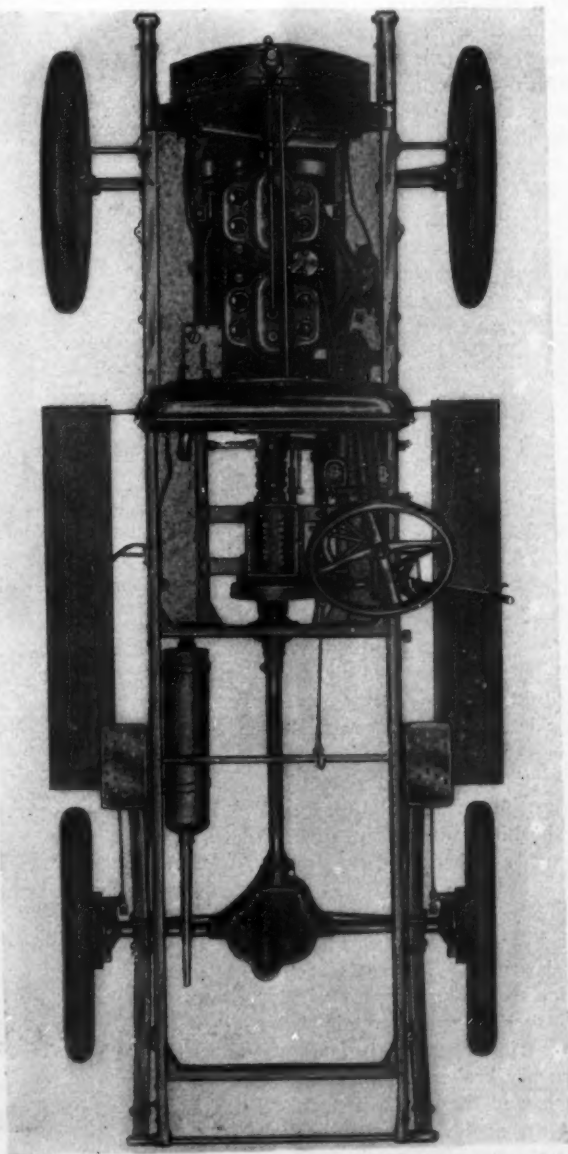
Instead of using double-ended stud bolts the cylinders are bolted to the crankcase to stay. It is not an uncommon thing when a nut is loosened for stud bolts to back out of their seats in the crankcase. To prevent this destruction of a perfect hold there has been adopted a regular square-headed bolt that comes through the crankcase, its

head butting against a squared shoulder cast on the underside of the crankcase top.

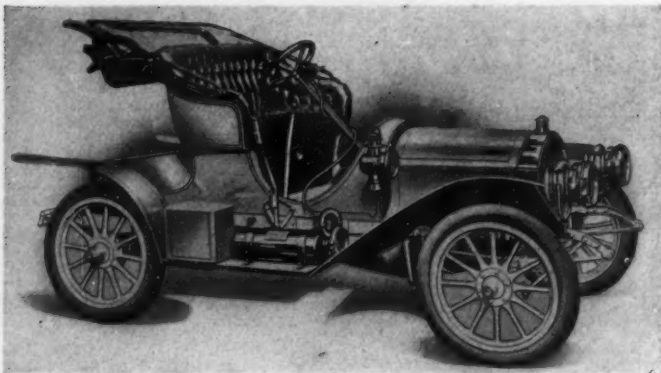
Long bronze lifter cages prevent valve pounding, and quietness is further insured by fitting the valve lifter studs with fiber disks, where the lifter strikes the valve stem. Ready entrance and exit of gases are insured by the lift and size of valves. The valves are all interchangeable, are large in cross area, giving an easy passage of the gases with but minimum lift on the stems.

The shaft running to the pump has a double universal joint which allows for strains and permits the removal of the pump without disturbing the gears. Only a simple packing ring is needed to prevent leakage while the motor is idle, for the only pressure is the slight one from the water itself at its highest point in the circuit. A water-tight joint with brass top plate is used at the water outlet on the cylinder heads.

The pressure feed mechanical lubricator is positively driven by a ball bearing eccentric and strap to a ratchet on the oiler. Delivered direct to the main engine bearings in the required quantities, the oil passes from these bearings outwardly to a grooved eccentric ring and thence through tube connections direct to the rod bearings. The oil passes outwardly along the bearings and is in turn thrown, by the action of the crankshaft, to the piston pins and cylinder walls. The oiler has four feeds, one to each of the three crankshaft bearings and the fourth to the top of the commutator. The plungers for each oil feed afford very decided advantage in making it possible to give a preliminary flushing by moving them up and down by hand. The convex top pis-



CHASSIS OF THE 1907 STODDARD-DAYTON.



STODDARD-DAYTON MODEL H RUNABOUT.

tons have three rings above the connecting rod pin and three oil grooves. Between these the outer piston wall is cut back to relieve friction and allow an oil pocket for better lubrication.

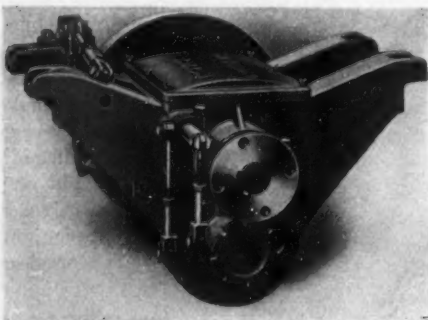
A float feed automatic carbureter is operated by the control member located on the quadrant under the steering wheel. It closes mechanically as soon as the clutch is withdrawn and upon allowing the clutch to re-engage is mechanically opened to the predetermined point. This prevents motor racing and saves gasoline.

In the ignition two storage batteries are used in connection with a dash quad separate unit coil. Batteries are connected singly. A five-terminal special timer is driven by bevel gears from one of the camshafts. This timer, openly located, is constantly lubricated from the pressure lubricator. High pressure cables run from the plugs through a hard rubber tube to the coil.

Actuated by a heavy pressure spring the leather-faced internal cone clutch can easily be removed by uncoupling the forward universal and dropping the shifting yoke. Ball thrusts are used for the clutch spring and cone proper. The floating type rear

axle is used, fitted throughout with Timken bearings. The differential is of bevel gear type with roller bearings.

In 1907 models the radius rods, of seamless steel tubing, carry all the forward motion from the rear axle to the framework of the car, relieving the springs from the severe strains of driving



SINGLE PIECE TRANSMISSION CASE.

and taking up all the road shocks. They are swiveled on the rear axle and have a ball socket forward fitting on the frame side. The rear springs are now hung on shackles at both ends, instead of anchored at the fore end.

In the front axle the special I-beam section is retained. Steering knuckles and arms are drop forgings. Steering spindles are hardened and rotate in steel-lapped bushings driven in each yoke end of the axle. Steering arms are broached to the spindles, then brazed.

In the 1907 models the lines of the body have been improved and beautified. The wheels of Model F are 34-inch instead of 32-inch, and have Timken adjustable bearings. The seats are 2 inches wider. Fenders are full inclosed. All brakes are larger. The valued feature of inclosed propeller shaft is retained. All brakes are the expanding floating ring type, with large expanding lugs and cranks. The emergency brakes and the foot brake are interconnected with the clutch, and the clutch in turn is connected with the throttle, so that the application of either brake withdraws the clutch and throttles the motor. The treadles

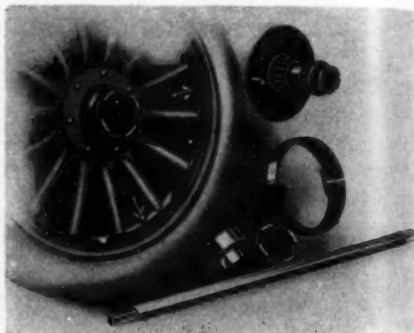
on both foot levers, are proportioned to move with the thrust of the ankle in progression as pressure is applied.

Both spark and throttle control levers are located as before, on the steering column under the wheel. The gear shift lever is located on the right side of the operator inside the frame. The emergency lever is on the right side of the car, outside the frame.

Selective type of transmission, giving three speeds and reverse, is still used, controlled by a single lever operating in an H slot guide, enabling the operator to change from one speed into any other speed without passing through any gears. The two sliding gears are broached and travel on a squared shaft. The gears on the countershaft are held by keys and by tubular spacers. All gears are steel forgings. Timken adjustable roller bearings are used throughout and all bearings are capped with a notched cup for adjustments.

With the main transmission driving shaft at the top the aluminum transmission case is absolutely oil-tight. The transmission and motor are connected by a double universal joint of special construction. This

universal, shaped like a double T, with the cross branches at right angles, is forged, machined, hardened, and fitted with square case-hardened blocks. These in turn travel in two slotted members giving freedom of movement in every direction. All springs made of a

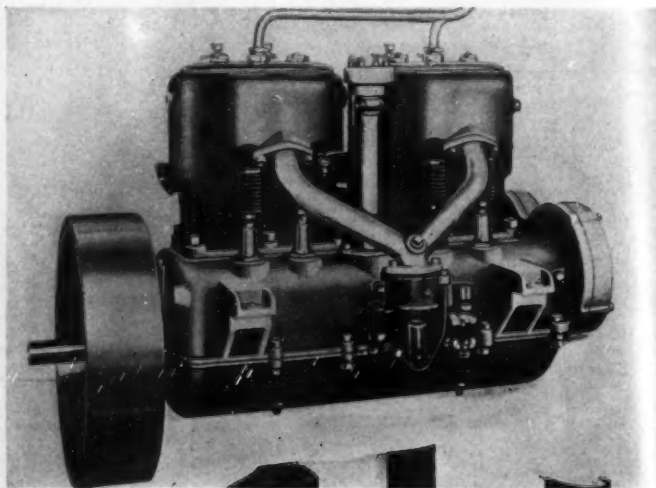


HUB GROUP AND LIVE AXLE SHAFT.

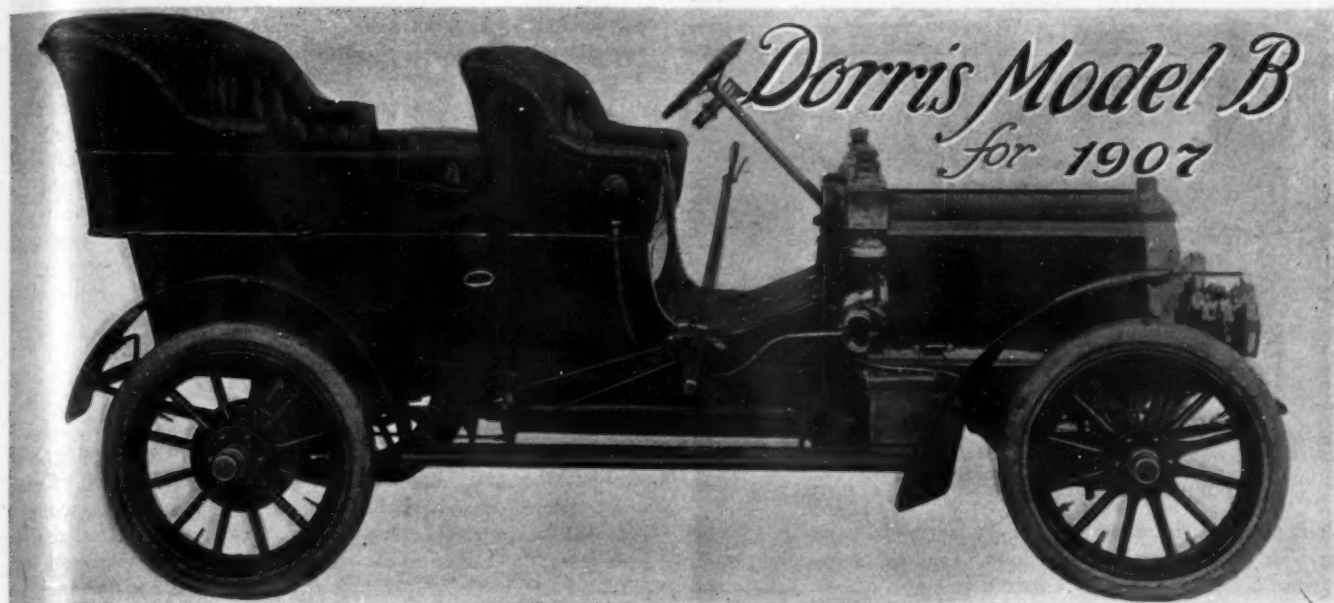
special crucible steel, are subjected to severe tests for "breaking" or "setting." Each leaf is double-lipped at each end, holding them in absolute alignment with all strain removed from the spring clips. Springs are 50 inches in the rear and 40 inches in front and 2 inches wide.

The entire frame, sides, and cross members are made in the plant, just as are all the drop forgings, including the front axle, the equipment of heavy presses, drop hammers, and bull dozers being a notable one to the visitor who likes to know how his car is made.

Model F, the touring car, sells for \$2,500, with full lamp equipment. The limousine on a Model F chassis is a \$3,500 car. Model H, the runabout, constructed with the same care and of the same high grade material, with a slightly smaller engine, is listed at \$1,750.



REGULAR STODDARD-DAYTON MODEL F MOTOR.



DORRIS 30-HORSEPOWER, FIVE-PASSENGER TOURING CAR FOR 1907, MODEL B—CHASSIS SHOWN BELOW.

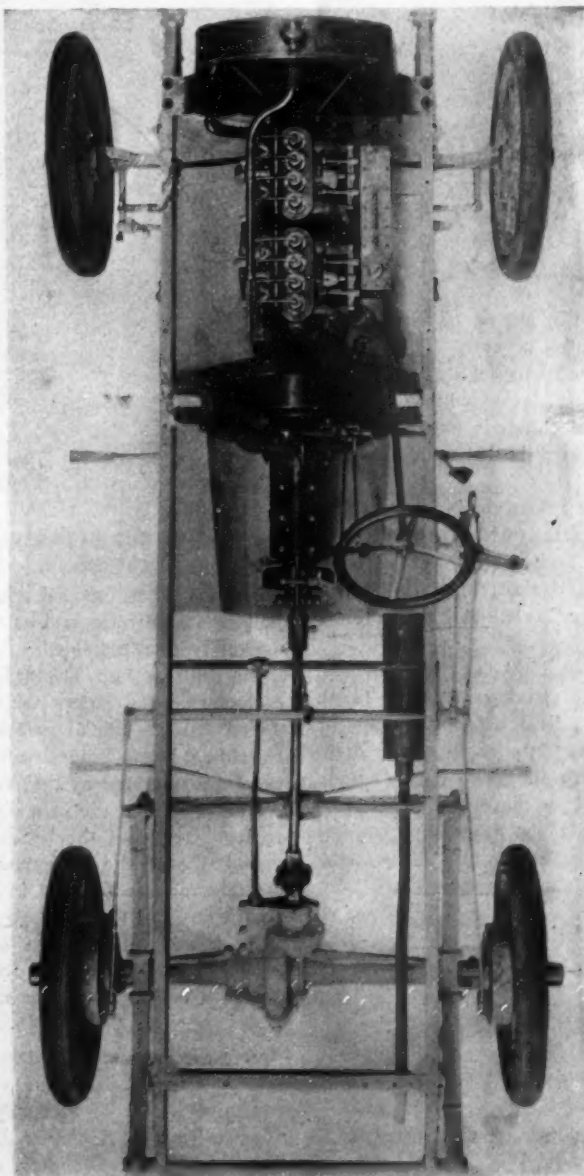
MODEL B, the Dorris car for 1907, manufactured by the Dorris Motor Car Company, of St. Louis, Mo., is a 30-horsepower four-cylinder touring car of moderate weight, moderate cost and with ample room for five persons. The lines, generally speaking, are of the accepted touring car type throughout, but the car bears the stamp of individuality in many details. That the Dorris is capable of withstanding not only ordinarily hard road work, but extraordinary and abnormal stresses, was shown in the recent economy test of the New York Motor Club. Though the car had to be shipped home finally, it was through the giving way of an old and worn part, fractured while the car was trying to buck through a snow-filled mountain pass that had forced a much heavier and more powerful car to turn back.

The Dorris motor has its cylinders cast in pairs with integral water jackets; the cylinders have a bore of 4 1/4 inches and a stroke of 5 inches and the rated 30 horsepower is developed at 1,000 revolutions a minute. Pistons are very long, to give a large bearing area and to maintain the compression. Four lap-jointed rings are fitted, and these are finally finished to exact size after the joints are made. The piston pins are of tool steel 1 inch in diameter and are clamped immovably into the connecting rod ends; in the piston bosses are bronze bushings, each 1 1/2 inches long, in which the pins oscillate. There is thus a bearing area of 1 inch by 3 inches, and the pin is positively prevented from working out and scoring the cylinder walls. Lubrication is an easy matter under these conditions, the oil from the cylinder walls working into the pin gearings very readily.

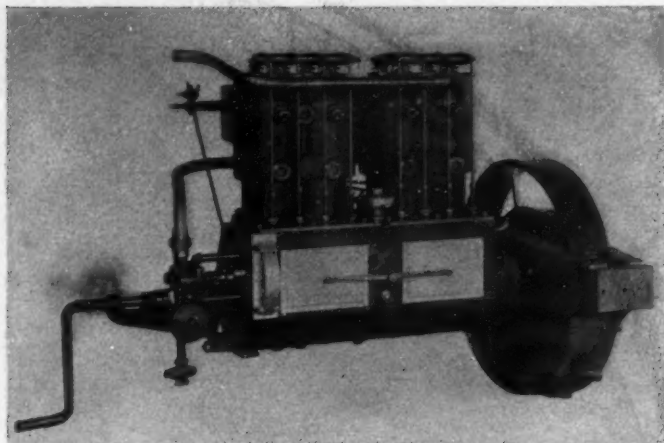
All the valves are mechanically operated and are of the same size and design. Opening directly through the cylinder heads with their stems pointing upward, they are operated through rocker arms and long push-rods extending upward from the camshaft. The valve cages in which the valves are seated are ground to their places in the cylinder heads and are held by bronze nuts. The rocker arms are bronze bushed and oscillate on a tubular shaft with a wick oiling arrangement that insures constant lubrication. The camshaft is made of a single bar of steel, with the cams integral, and the whole is hardened. Guides carry the lower ends of the push-rods, with the rollers which take the cam thrust.

Connecting rods are of I-beam section with the big end bearings of Parsons' white bronze. The caps on the big ends are each secured by two special bolts 7-16 inch in diameter with 20 threads to the inch and castellated nuts locked by cotters. The bearing is 1 1/2 inches in diameter and 23-8 inches long. The manufacturers state that the bearings are capable of running six or eight thousand miles before adjustment is required. When it becomes necessary to make any adjustment, the cranks are easily reached by taking off plates in the crankcase, there being four of these plates each 4 1/2 by 7 inches. The crankcase is made in a single piece and the crankshaft is inserted through the rear end.

The radiator is of the finned tube type, the tubes being placed horizontally in rows four deep. Water circulation is maintained by a gear pump placed directly in line with, and driven by, the camshaft. The timer is carried by a short vertical



PLAN VIEW OF DORRIS CHASSIS



DORRIS 30-HORSEPOWER, 4-CYLINDER MOTOR.

shaft between the two pairs of cylinders and the shaft is driven by bevel gears from the camshaft. Ignition is by jump spark, current being furnished by a 6-volt, 60-ampere hour storage battery, with a set of dry cells held in reserve for emergency use.

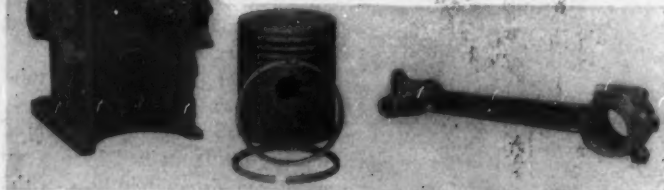
Drop-forged steel is employed for the crankshaft, which is finished to a diameter of 1 3/4 inches at the main journals. There are three journals, the one at the flywheel end being 5 inches long and the other two 2 3/4 inches long. The flywheel is bolted to a flange formed integral with the shaft.

The gearbox is bolted directly to the crankcase by arms which reach around the flywheel and clutch; the unit thus formed is hung from three points—a constructional method that is finding much to recommend it in actual work. Between the motor and the gearcase is the clutch, inclosed in a housing formed in the extended hub of the flywheel. The clutch is of the multiple disk type, having alternate disks of bronze and steel, five of each, and it operates in the smooth, easy fashion that is characteristic of a good multiple disk clutch. The flywheel is cast with fan-blade spokes, drawing the hot air backward from the motor space under the hood.

Sliding gears in the gearbox, operated by a lever of the progressive type, give three forward speeds and a reverse. The drive is direct on the high speed. All gears are of nickel steel, hardened and tempered. There is an interlocking device which makes it impossible to shift the gears while the clutch is engaged. Just at the rear of the gearbox is the working brake, operated by a pedal.

Final drive from the gearbox to the rear axle is by propeller shaft and bevel gears; the shaft is fitted with two universal joints to take up vertical movement and a slip-joint to compensate for the alternate lengthening and shortening of the distance between the gearbox and the rear axle. All these joints are encased and packed in grease.

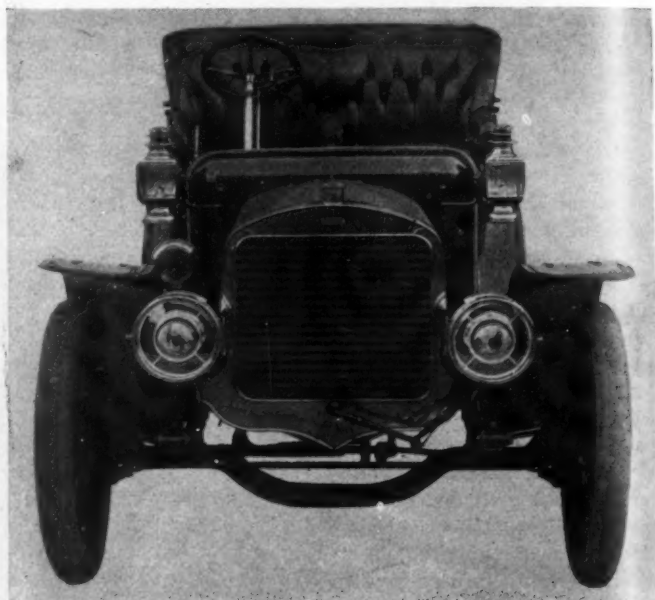
The differential is carried between two Timken roller bearings, as is also the driving pinion. These bearings are adjustable; by means of these adjustments the mesh of the driving pinion with its gear can be made perfect. The live shafts are squared at their inner ends and enter square holes in the large gears of the differential. The outer ends of the live shafts also



SOME COMPONENT PARTS OF THE DORRIS MOTOR.

run in Timken rollers. Cold-pressed sheet steel main frames, of the customary channel section, are employed, the metal being 5/16 inch thick and the frames 4 inches wide at the center and tapered to the spring horns at the ends. The front springs are semi-elliptic, while in the rear a platform arrangement is used, the cross springs being placed in front and the side springs attached at their rear ends to a cross tube which extends across the extreme rear end of the frame. The pull of the motor is transmitted to the body through the springs, which do not push through their forward ends, but pull through their rear ends on the cross tube. Thus radius rods are dispensed with. All springs are 2 inches wide.

Solid forged steel of I-beam section forms the front axle, with which the spring seats are forged integral. The steering knuckles are of the reversed Elliott type—that is, the pivot is on the axle proper and the fork on the swiveling stub. The knuckles and stubs are drop forged and are fitted with hardened and ground steel bushings and a hardened and ground steel pivot bolt. Cross-rod and arms are placed behind the front axle and the connection with the steering gear is as direct as possible. The steering gear is of the rack and pinion type and is unusually well supported, being bolted to the bottom of the crankcase and inclosed in a casing which retains oil and excludes water and dirt. The



HOW THE DORRIS CAR LOOKS WHEN YOU MEET IT.

pinion is made integral with the steering shaft; the rack is connected to the cross rod by a link, the joints being of the ball and socket type, adjustable.

On the rear hubs are brake drums of pressed steel, 12 inches in diameter and 2 inches wide; within these are expanding rings faced with a special camel's hair fabric which is fireproof and durable. These brakes will slide the rear wheels on dry roads; they are operated by the emergency brake lever at the right side.

The body is made in a single piece, and the space between the tonneau seat and the back of the front seat has been increased 6 inches over the 1906 model. The dashboard is of mahogany, straight, and is finished in its natural color. The wheelbase is 102 inches and the tread 56 inches. Wheels have 12 spokes, each 1 1/2 inches in diameter, and are 32 inches in diameter, with 4-inch tires. Both front and rear wheels run on Timken roller bearings. The car weighs 2,300 pounds.

A new concern in the manufacturing trade is the Ray Motor Company, of Connorsville, Ind., recently organized with a capital stock of \$100,000. The directors are J. J. Maloney, Rowan Ray, W. S. Calder, Louis D. McCall, and L. F. Geary.

CLUBS PLANNING NEXT SEASON'S WORK

SPRING ENDURANCE RUN IN NEW JERSEY.

NEWARK, Nov. 17.—Preliminary arrangements are being made by the New Jersey Automobile and Motor Club for an endurance run to be held next spring. The event will in all probabilities be a touring contest of 500 to 1,000 miles. In detail, the club run will be similar to the Glidden tour, but not covering such a large amount of territory.

A route that has been suggested is for the contestants to start from the club house in Newark to Mendham, by the way of Morristown, then through German Valley, Schooley's Mountains, thence to Hackettstown to Phillipsburg. The course, after leaving Phillipsburg, would also cover Pattenburg, Clinton, and Flemington, and the return trip would be made through Neshanic and Sommerville over a familiar route to Newark. This route would cover approximately 140 to 150 miles, and in order to make the contest of long endurance it has been suggested to have the cars sent over the course four or five times.

The officers of the New Jersey Automobile and Motor Club gave a dinner in honor of Jacob W. Mason on Thursday night in the club house. Mr. Mason, who has been active since the club was organized, handed in his resignation as a member of the board of trustees, he having decided to go into the automobile business, and according to the by-laws of the club no automobile dealer can hold office.

A. C. of Maryland to Have Endurance Tours.

BALTIMORE, MD., Nov. 19.—The Automobile Club of Maryland has decided to hold touring contests which will be similar to the Glidden tours. Two of the tours are to be decided the coming spring and one in the fall. Dr. H. M. Rowe, who has offered a trophy for the prize, wants contests of 100, 200, and 300 miles, the races to be decided on the merit system. The suggestions of Dr. Rowe were accepted with the exception of a few minor details, which will be changed by the committee, and they will submit the changes to Dr. Rowe for his approval. The races will be for members only, and the owners of the cars are to be the drivers, and all evidence of professionalism will be lacking.

The Automobile Club of Maryland has decided to take immediate action on the present excessive rates of insurance on the automobile, and also the legal limitations. The club's desire is to have companies, which make a feature of issuing rates on automobiles, to draw up agreements for damages that result from collisions of all sorts. Ferdinand Bernheimer, who is the chairman of the committee which has been making investigation into the insurance rates, reports that about 30 per cent. of the present rates have been reduced.

Minneapolis Automobile Club Is for Men Only.

MINNEAPOLIS, MINN., Nov. 17.—Eight new members were elected at the last meeting of the Minneapolis Automobile Club, and an amendment was adopted to the constitution, limiting the membership to 500 active and 100 non-resident male members. The privileges of the club will be extended, however to any lady automobilist owning and operating her own machine upon application to the board of directors.

OTHER CLUBS SHOULD FOLLOW SUIT.

NEW YORK, Nov. 19.—At a recent meeting of the board of directors of the New York Motor Club, the following resolution, which will be approved by all self-respecting autoists, was adopted:

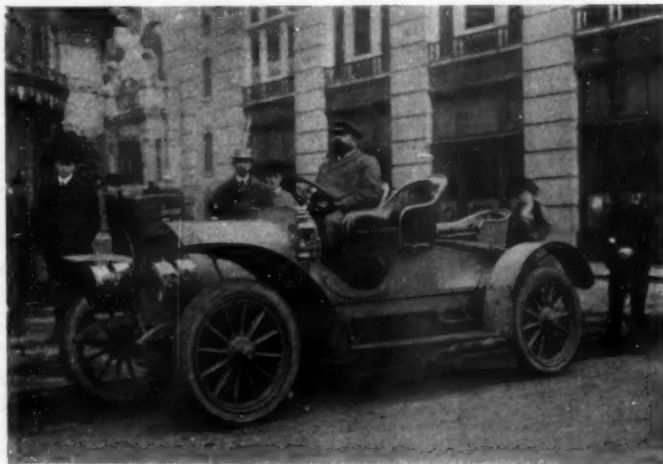
Whereas, The public has recently called attention to the reckless driving of a few automobilists who have run into and injured pedestrians and drivers, or other vehicles, and escape arrest by speeding away; therefore be it

Resolved, By the New York Motor Club that the board of directors do hereby authorize a reward of \$50 for the arrest and conviction of any driver of any automobile within the limits of Greater New York who shall run into and injure any person or persons and attempt to get away without offering aid or submitting to arrest, and furthermore be it

Resolved, That the New York Motor Club shall expel any member who shall be found guilty of the above offense after a hearing before the board, and that the New York Motor Club asks other clubs to adopt the same course in regard to any of their members who shall be found guilty as above.

President W. J. P. Moore, of the club, said in regard to the resolution: "The directors felt that it was time some automobile

organization took official action with regard to this new phase of illegal speeding. We were of the opinion that any driver who would either accidentally or unknowingly injure anyone and then try to get away and thus escape arrest, leaving his victims to the results of his act without attempting to aid them, is unworthy of consideration. Hence this offer."



PRESIDENT W. J. P. MOORE OF THE NEW YORK MOTOR CLUB IN HIS NEW MOORE CAR.

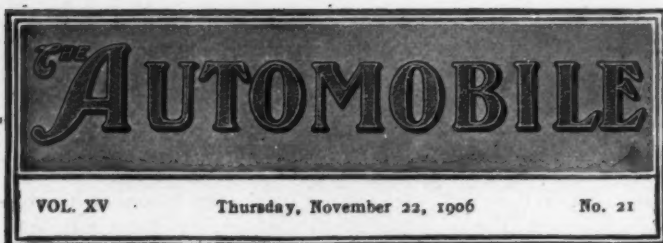
Sign Board Funds for the Long Island A. C.

The Good Roads Association of Brooklyn at its recent meeting practically decided to disband, though it has a membership of 100 and a balance of \$650 in the treasury. The Good Roads Association harkens back to the heydays of cycling and was responsible for the construction of the famous Coney Island Cycle Path. The treasury surplus will probably be turned over to the Long Island Automobile Club for the specific purpose of erecting sign boards on Long Island roads. President E. H. M. Rohr presided at the meeting, and among the speeches made favoring the plan was one by James D. Bell, Corporation Counsel of the Borough of Brooklyn.

"The automobile interests have taken so active a part within recent years in influencing good road legislation and appropriating so much money through their respective clubs toward this end," he said, "that it is entirely fitting that this association, particularly as practically all of the members are affiliated with the Long Island Automobile Club, should transfer its activity where it will do the most good."

This view of the case met with unanimous approval and resolutions had been prepared to disband the organization, but it was ascertained that there were some legal questions to be carefully determined regarding the trusteeship of the funds and final action was deferred for two weeks. This final meeting will probably be held in the rooms of the Long Island Automobile Club.

The third annual hill climb of the Rhode Island Automobile Club will be held on the "Stump Hill" Reservoir course, Pawtucket, Thanksgiving Day morning, November 29.



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EDITORIAL DEPARTMENT:

A. G. BATCHELDER, Managing Editor

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B. FRANK BARNETT

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C. H. GURNETT, H. H. GILL, 625 Monadnock Block, Chicago, Ill.

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Anent the Pressing Need of Inter-State Recognition. From New Jersey, which declines to recognize the automobile registrations of other States, again comes the call for a license that shall answer for the entire country. Dishonest owners undoubtedly have taken advantage of the present liberality of the New York State and similar laws which take cognizance of foreign licenses, and many cars are being driven with faked license numbers purporting to have been obtained in other States. This difficulty of enforcing the registration requirement when inter-State recognition is included has been an argument which New Jersey legislators have used when the automobilists contended for the same consideration towards visiting automobilists which they possess when touring away from home.

From President J. H. Wood of the New Jersey Automobile and Motor Club comes the best suggestion that has been put forward in connection with inter-State licensing. Mr. Wood proposes that any automobilist who is regularly registered and licensed in his native State shall upon application be granted by the Federal Government a tourist's license which will answer in any State in the Union. This would prevent any evasion of the law, for the tourist after leaving his own State would be obliged to display on his vehicle the national license, secured only after he had obtained a permit at home. There should be a heavy penalty for using a fake number, for this form of dishonesty is so petty and at the same time so misleading that the culprit deserves no sympathy whatever.

Mr. Wood also reiterates an old suggestion that should be included in every automobile law throughout the country. It is that all vehicles, whether motor-driven or horse-drawn, shall

carry lights at night. It is far fetched for the automobilist to argue that horse-drawn vehicles should carry numbers, but it is a matter of safety to all to insist that every user of the road be required to carry lights in the darkness. Many an accident would have been prevented had the horse driver taken a precaution which he should take whether or not the law compels him to do so. This is occasionally done, but too infrequently.



Indicator Diagrams and Automobile Engines.

The revelations of the indicator card, as applied to current practice in the building of gasoline automobile engines, have constituted a most neglected field in the possible improvement of this type of motor. This condition, the existence of which no one can dispute, has been in the past partially justified by the extreme difficulty of securing correct cards with the inadequate appliances then available. The high and greatly varying pressures that are encountered and the enormous rapidity of the rise to the maximum pressure have proved almost insuperable difficulties in the way of obtaining genuinely-useful results. Because of these considerations there has been the best of good reason for the building of thousands of engines by rule-of-thumb and cut-and-try methods, rather than upon the strength of deductions scientifically established through experimenting with proper apparatus.

Within the past few years, however, the condition referred to has improved, and—chiefly because of the invention of the Hospitalier and other mirror manographs—it is a comparatively simple process to gain a very correct idea of what really happens within an engine cylinder, especially during the compression and explosion phases of its cycle.

The deductions from the new data thus rendered available in increasing quantity—as the new indicating devices find wider application—are certain to be productive of material improvement along several obvious lines. Already the product of many of the foremost designers embodies recognition of facts that a few years ago were unknown and even unsurmised. That this growing observance of the technical conditions essential to the best working results is bound to continue until in time it eliminates many of the admitted difficulties with present constructions, no one can doubt.

Several examples will serve as cases in point. Perhaps the chief one has to do with ignition timing, which many engineers are coming to believe is desirable simply as an offset to lags of effect in the ignition apparatus, rather than because of slowness of combustion within the engine cylinder. Another point, less well established, is the exceedingly short duration of the maximum pressures attained, and thus in a manner upholds the prevailing tendency toward increased bores and reduced strokes. Similar instances could be multiplied, but these are enough to suggest the great advancement almost certain to follow upon more widespread scientific investigation into the internal phenomena of the internal-combustion engine.



First of the Winter Automobile Shows.

It is a matter of regret that there is not in New York City a structure large enough to provide adequate show space for the entire automobile industry of this country. But such a building does not exist, and therefore two shows are a necessity in order to present for public inspection the models of the makers who believe in shows. The first of the winter exhibitions will open Saturday night, December 1, the Automobile Club of America this year holding its annual event in the Grand Central Palace. A preliminary summary of what will be shown emphasizes in marked degree the great growth of this unparalleled industry, which now ranks second to no other in point of capital invested and far-reaching benefits to these United States.

N. A. A. M. SUPPORTS LONG ISLAND HIGHWAY.

The N. A. A. M., through its Executive Committee, which held a session November 14 at the association's headquarters in New York City, promised the moral support of the organization to the Long Island Motor Highway, whose representatives in the persons of Jefferson De Mont Thompson and A. R. Pardington appeared and explained in detail the plans for the construction of a sixty-mile road across Long Island. S. T. Davis, Jr., was designated to represent the N. A. A. M. on the Board of Directors of the Long Island Motor Highway.

Present at the session were President E. H. Cutler, Vice-President S. D. Waldon, Benjamin Briscoe, S. T. Davis, Jr., William E. Metzger, Ezra Kirk, L. H. Kittredge, M. J. Budlong, M. L. Goss, William R. Innis, and General Manager S. A. Miles.

The Contest Committee, which has in charge the preparation of a set of rules for a contest in 1907, reported that three meetings had been held during the month, one lasting an entire day and two others half a day apiece; that the committee had worked earnestly in an endeavor to formulate rules which would be acceptable both to the trade and public, but that at least one further full-day session would be necessary before it would be possible to present a formal report. Subsequently, the committee arranged to meet in Detroit, November 27.

The report of the Show Committee dealt at length with the cases of a number of concerns which exhibited at an unsanctioned show held in Chicago in September, who have since applied for space at the sanctioned shows. The rules of the association provide that no concern which exhibits at an unsanctioned automobile show shall be permitted to exhibit at any sanctioned show, which had been interpreted to mean that those who took part in the unsanctioned show would not be permitted to exhibit at either of the shows in New York or the show to be held in Chicago next February. A large number of letters had been received whose writers stated, with evident truth, either that they were unaware of the existence of the rule or that they had been led to suppose that an exhibit at a parts show would not debar them from participation in the annual automobile shows. After a full discussion of the subject, the Executive Committee took the ground that, inasmuch as the exhibits at the unsanctioned show were exclusively of parts and accessories, and that it was not, therefore, clearly an automobile show, there might have been a reasonable doubt whether it was an automobile show within the meaning of the rules, and decided that exhibitors thereat shall not be debarred from participation in the sanctioned shows.

At the October meeting of the association it was decided that all matters relative to exhibits of parts and accessories should thereafter be left for decision to the Motor and Accessory Manufacturers, Inc., the Executive Committee therefore amended the sanction rule, so that it now reads as follows:

"No person, firm, company or association shall be permitted to exhibit, directly or indirectly, in his or their own name, or in the name of an agent, dealer, jobber, branch house or any other person, firm, company or association, who or which has or have exhibited or contracted to exhibit an automobile or automobiles, or permit an automobile or automobiles made or imported by him or them, which he or they own or control, to be exhibited at any automobile show held in the United States after the first day of September, 1904, which has not been officially sanctioned by the National Association of Automobile Manufacturers, Inc., or who has exhibited or contracted to exhibit, or permitted parts, accessories, or other goods connected with the automobile industry, made or imported by him or them, or which he or they own or control, to be exhibited at any automobile parts or accessories show held in the United States after the first day of September, 1904, which has not been officially sanctioned by the National Association of Automobile Manufacturers, Inc., or the Motor and Accessory Manufacturers, Inc."

A. M. C. M. A. TO ENTERTAIN SHOW EXHIBITORS.

During the week of the automobile show, Grand Central Palace, New York, the American Motor Car Manufacturers' Association will tender a luncheon to all the automobile exhibitors at the show. It will be held on Thursday, December 6.

THE A. C. A. SHOW EASY OF ACCESS.

Accessibility for both out-of-town and New York City visitors to the Grand Central Palace show, to be held the week of December 1 to 8 by the American Motor Car Manufacturers' Association and the Automobile Club of America, is an advantage insured by the location of the building. Situated on Lexington avenue and covering the entire block from Forty-third to Forty-fourth streets, it is in the heart of the

extensive operations being carried in connection with the new terminal for the New York Central and New York, New Haven and Hartford railroads. It is equally fortunately situated in its central environment of hotels, theaters, shopping, clubs and residences, together with local transportation facilities. During the changes taking place in the railroad terminal situation the ground floor of the Grand Central Palace becomes the terminal of the two railroads. This will bring out-of-town visitors from



MISS COLUMBIA AT THE WHEEL.

Poster design by Pal, in eight colors, for the American Motor Car Manufacturers' Association. Copyright applied for.

the East, North and West direct to the show with only the need to step from the trains to an elevator or to walk up one flight of stairs, when they will be in the exhibition hall without once stepping out-doors. Not only does the Lexington avenue cars, with their up and down-town routes passing through widely scattered sections, pass the building, but within one block are such prominent lines as the Forty-second and Thirty-fourth street crosstown lines and the Amsterdam up and down lines, with their ramifications of transfers. Within this same zone of one block is a Third avenue elevated station, and but one-half block further is an express and local station of all the subway lines. This latter feature will be appreciated by all who wish to economize time.

COLGATE HOYT NOW A. C. A. PRESIDENT.

The annual meeting of the Automobile Club of America was held Tuesday night at the Fifth Avenue clubrooms, and it may be the concluding session in the old quarters, for the new clubhouse on West Fifty-fourth street will be ready for occupancy the latter part of December. The A. C. A. has reached its limit of 1,000 active members, and has beside 235 associate and six life members.

In the course of his report the retiring president, Dave Hennen Morris, told of the progress of the organization and stated that "it is everywhere regarded as the national club of this country and has binding treaties with nearly every foreign automobile club." The inference was the expression of a desire to nationalize the club, but it will be remembered that when the American Automobile Association was formed at Chicago several years ago the same desire was apparent, but the other large clubs of the country raised objection to the seat of government being permanently located in New York City. Since there are even more powerful clubs throughout the country, the impression prevails that any effort to have the A. C. A. replace the A. A. A. would be opposed vigorously.

The new officers of the club are as follows: President, Colgate Hoyt; first vice-president, Dr. Schuyler Skaats Wheeler; second vice-president, John E. Borne; third vice-president, Gen. George Moore Smith; treasurer, W. S. Fanshawe; three governors to serve three years, Dave H. Morris, A. R. Shattuck, and W. E. Scarritt.

WILL MANAGE THE LONG ISLAND PARKWAY. NEW YORK ROADS TOO MUCH FOR GLIDDEN.

At the Monday meeting of the directors of the special automobile road the exact name adopted was the Long Island Motor Parkway, Incorporated, and A. R. Pardington was elected second vice-president and general manager. Offices have been secured in the Night and Day Bank, 527 Fifth avenue, New York City, and



A. R. PARDINGTON.

the work will be carried on energetically. Mr. Pardington is recognized as a most excellent selection. Thoroughly conscientious in all that he does, experienced in the handling of big things, and of unquestioned integrity, he is favorably known throughout the entire automobile world, with which he has been identified since it was born in this country. As chairman of the A. A. A. Racing Board, and consequently the first chairman of the Vanderbilt Cup Commission, he has blazed the way and thereby made it easier for those who have followed in his footsteps. Keenly interested in high speed, Mr. Pardington, even when he retired from the chair-

manship, could not resist the temptation to have more or less to do with the Vanderbilt races and the Florida meet and other important events. In accepting his new position, Mr. Pardington leaves a high-salaried place with the New York & New Jersey Telephone Company.

DESIGNER SCHMIDT'S PEERLESS CONTRACT.

CLEVELAND, O., Nov. 19.—In conversation to-day about the Peerless plans for the coming year, E. S. Parkhurst, of the Peerless Motor Car Company, said: "We are immensely satisfied with the prospects for 1907. The company has just renewed its contract with Charles Schmidt, the chief engineer of the company, securing his future services for a period of several years. The improvements which he introduced in the 1906 models will be developed still further in next year's cars. Mr. Schmidt's extensive experience in Europe and this country in automobile construction peculiarly fits him for the position of chief constructor. He is now arranging for a trip abroad in which he will inspect the improvements in machines and methods in France and the other automobile building countries. The success of the 1906 Peerless models has created a profound impression on the automobile public, and from the results had with the new models we are assured that the reputation of Peerless cars will be still further increased in 1907."



CHARLES SCHMIDT.

CARTER CO. TO HAVE WASHINGTON PLANT.

WASHINGTON, D. C., Nov. 19.—The Carter Motor Car Company, which was incorporated some time ago under local laws and which now has a factory in Detroit, has decided to erect another factory in this city. This action was taken at a meeting of the stockholders held this week, and the boomers of the Greater Washington movement are elated. The following officers were elected for the ensuing year: President, A. Cary Carter; vice-presidents, J. C. Duke, F. A. Dodge, Edward Richards, and William Arrison; treasurer, Frank L. Carter; secretary, W. Shirley Carter.

SYRACUSE, N. Y., Nov. 15.—Charles J. Glidden, the globe-girdler, has had enough of New York state roads, and this is what he had to say to-night:

"Six hours' driving in mud and snow 6 to 8 inches deep, on the second speed, and only accomplishing fifty-one miles, Utica to Syracuse, is the climax of disagreeable touring with the automobile. Once we skidded slowly into a gutter and several times tested the maximum power of the engine in pulling the car out of mudholes. A farmer living on the main highway to New York State between Albany and Buffalo, and who came west from New England fifty years ago in a prairie schooner, said the roads were better then than now. In fact, no improvements have been made on this great thoroughfare since the days of the stage coach.

"The conditions of the roads West are so unfavorable for motoring that it would be impossible to make Chicago in season to start from that city on the railroad tracks and keep my appointments in Arkansas and Texas and reach the Mexican capital by New Years. I have concluded, therefore, to discontinue the highway section of the drive here, ship the car to Chicago and to leave there on the tracks about November 23."

WORCESTER AUTOMOBILE CLUB'S BANQUET.

WORCESTER, MASS., Nov. 21.—The sixth annual banquet of the Worcester Automobile Club was a pronounced success and the most notable in the history of the organization, which now has over 450 members. President John T. Coghlin made a versatile and witty toastmaster, and a pleasing diversion of the evening was the interpolation of song parodies arranged especially for the occasion and containing more or less material about those present. The speakers included Mayor John T. Duggan; Elliot C. Lee, ex-president A. A. A.; Lewis R. Speare, third vice-president A. A. A.; A. G. Batchelder, editor THE AUTOMOBILE; Francis Hurtubis, chairman Massachusetts State A. A. Law Committee; John C. Kerrison, secretary Massachusetts State A. A., and John Fortescue, secretary Bay State A. A. Covers were laid for 150, and the entertainment continued until a late hour.

MAXWELL-BRISCOE PLANT IN INDIANA.

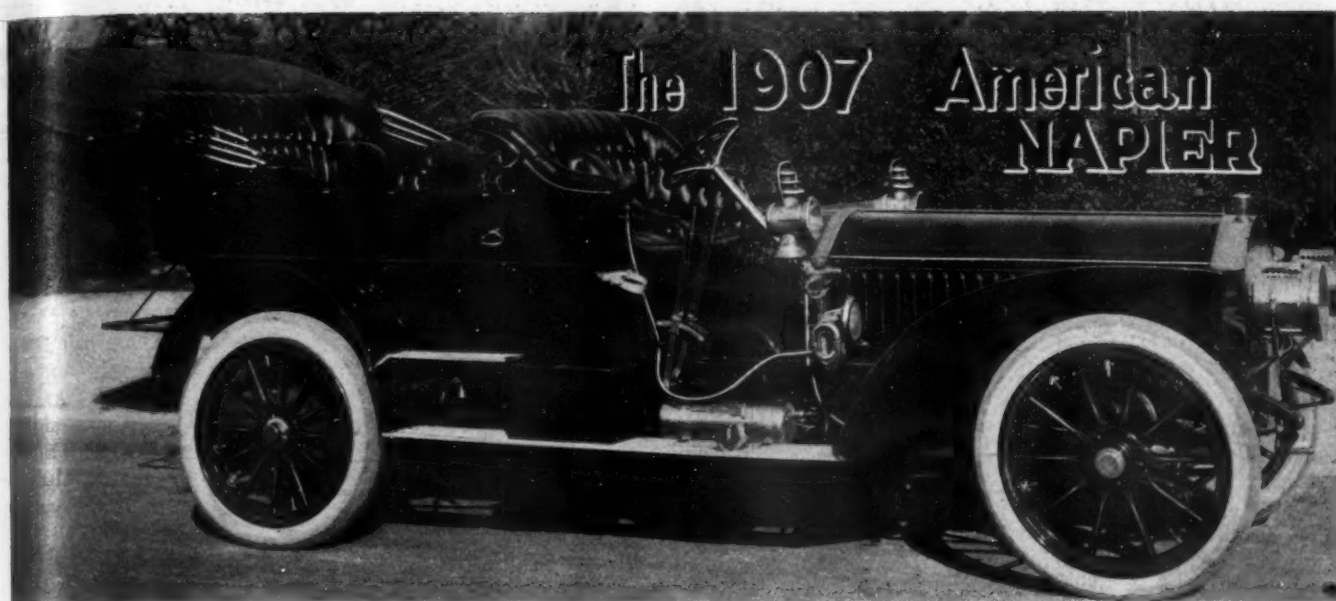
NEWCASTLE, IND., Nov. 19.—The most unique demonstration in the history of this city occurred Friday night to mark the assurance that this place is to have the new Maxwell-Briscoe automobile factory. At 7 o'clock every factory whistle in the city blew and every bell rang for several minutes that citizens might know the deal had been successfully culminated.

This city obtained the factory against great odds, as many other Indiana cities contested hotly for it. An industrial committee was organized to carry through the deal, and this committee offered the automobile company a bonus of \$100,000. In order to raise this money 400 lots between the factory site and the city were placed on sale. In less than one week 300 of them had been sold and the remaining 100 were sold at a mass meeting of citizens. The money is ready for the company, and is expected that building operations will begin shortly.

TOM COOPER'S FATAL ACCIDENT.

An impromptu brush in Central Park, New York City, shortly after midnight Monday night resulted in a collision whereby Tom Cooper, the well-known Matheson driver, was instantly killed and several others were more or less seriously injured, one of whom, Daniel Barkalow, died subsequently.

Tom Cooper was well and favorably known throughout automobiling, into which he had progressed, like many others, from the ranks of cycling, in which at one time he figured as the American champion. As a participant in automobile racing he had met with considerable success, and intended to be a starter in the next Florida meet. His death will be universally regretted, for he was exceedingly popular with the general public, as well as possessing innumerable friends in the trade.



SIDE VIEW OF 60-HORSEPOWER SIX-CYLINDER NAPIER CAR, WITH ROOMY TONNEAU.

NAPIER cars will be built in this country by the Napier Company of America, of 743 Boylston street, Boston, Mass., and for the season of 1907 two types will be built. One will be the six-cylinder 60-horsepower touring car, and the other the Napier Nike, a runabout, with 18-20-horsepower motor.

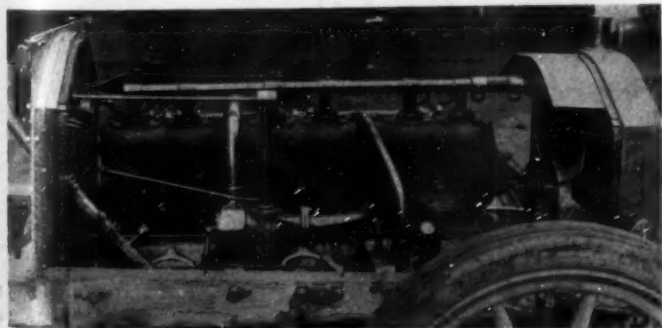
In the big 60-horsepower car, which is illustrated herewith, the cylinders are cast in pairs with water jackets integral and the valves all on the same side, the left. The bore is 5 inches and the stroke 4 inches—a striking example of short stroke as compared with the bore. The crankshaft is an example of painstaking methods, being hand-forged from chrome nickel steel. The camshaft is a single forging of steel, with all the cams integral, and for this year a change has been made in their shape conducive to quieter running. The crankcase is cast of aluminum alloy and is in halves, horizontally divided, with the arms by which the motor is supported cast integral with the top half. The lower part of the lower half is fitted with an oil well, and in this, submerged in oil, is the gear-pump, which sends the oil to the various frictional points in the engine. This pump is directly below the camshaft and is driven by a pair of skew gears, the camshaft gear being cut on the shaft itself. The oil level is always slightly higher than the top of the pump, so that it is assured of a supply. Oil is pumped first through a gang of sight feeds on the dash and then passes to the four main bearings and through the drilled crankarms to the big end bearings and up through the connecting rods to the piston pins. The excess of oil from these comes out and lubricates the cylinder walls in a highly satisfactory manner.

In detail, this crankcase oil well is filled from a large filler on the right hand side of the engine large enough to dispense with

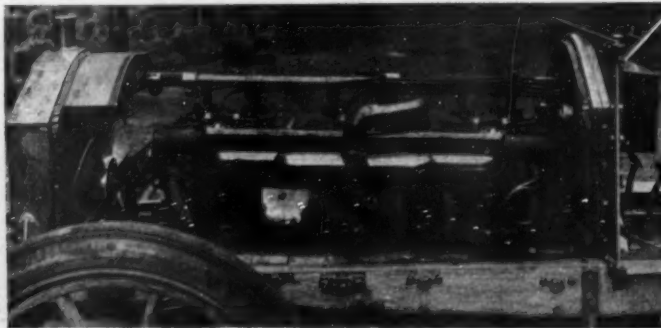
an additional funnel and with its own gauze strainer. From the pump a pipe leads the oil up into the bottom of the glass gauge on the dash, while another pipe allows it to pass out again at the bottom to the engine. The latter pipe is forked, one arm leading to a branched pipe that feeds the bearings of the crankshaft, while the other arm is connected to a six-way pipe for the cylinders. Each cylinder has a kind of annular trough held in place between it and the crank chamber, and into this trough dips the piston at the completion of each down stroke. From this trough, moreover, are pipes projecting downward, these pipes directing a stream of oil on each of the big-end bearings, where there is a projecting lip to catch it and direct the oil upon the bearing surfaces and upon the camshaft. In the first place, however, the oil is directed upwards by the feed pipes through which it enters the cylinders, through a jet pipe that sprays the oil upon the cylinder walls and piston, and at the same time feeds the trough at the base of the cylinder.

A change has been made in the location of the synchronized type of jump spark, in placing it forward of the dash and just back of the engine. It is driven from the half-speed shaft by gear instead of by chain, as on the 1906 models. Provision is made for using a high tension magneto if desired. The water pump is of ample proportions and driven through an intermediate stud gear off the camshaft gear. The governor is immediately back of the pump, and is driven by the same shaft. The water cooler is of the cellular type with fan, driven by a belt off the crankshaft.

The carbureter is of the float-feed type, and is connected with the motor by means of a specially designed intake pipe. Its compensating hand-controlled throttle valve is coupled up to the



RIGHT OF MOTOR, SHOWING CARBURETER PRESSURE INTAKE.



LEFT SIDE OF MOTOR, SHOWING SPECIAL INTAKE MANIFOLD

smaller of the two hand levers above the steering wheel and the throttle valve is operated solely by the governor. An accelerator pedal is interconnected with the governor mechanism. Between the main air supply pipe and the carburetor is a hydraulic regulator that is operated by the cooling water system, by pressure, and therefore in accordance with the speed of the engine. Above the mixing chamber is an auxiliary air valve which can be opened to the required extent by a hand lever on the dash.

Choice of two kinds of clutch may be had, one a metal to metal cone clutch of large diameter and the other a disk clutch. The drive is through a three-speed and reverse sliding-gear box with selective control lever and direct drive on the high speed. All transmission bearings are the well-known D. W. F., imported, of extra large size. All gears are specially treated chrome nickel steel. The rear axle is of the semi-floating type, with inclosed propeller shaft. Inside the axle tubes the live shafts run in ball bearings, but the wheels themselves take a bearing upon the outside of the axle tubes and also have ball bearings. The differential is through spur pinions.

The 48-inch semi-elliptic rear springs are fixed above the live axle and are reinforced by a platform spring and with shock absorbers. Radius rods are used for tying the axle casing to each of the side members, but the spring brackets to which they are coupled at their rear ends ride quite freely about the axle tube. The spring brackets are provided with grease cups. By this construction neither the springs nor the radius rods take the torque of the axle casing; the springs take the weight of the body during road shocks and the radius rods transmit the drive from the axle to the frame. The front semi-elliptic springs are 42 inches, and are provided with shackles at their rear ends. The axle is a curved hydraulic forging of alloy steel of I-beam section and the forked portion of each steering head is formed solid with the short stub axle that carries the road wheel. Ball bearings are used for the road wheels. Steering is by worm and sector with a double nut for taking up wear or back lash when desired.

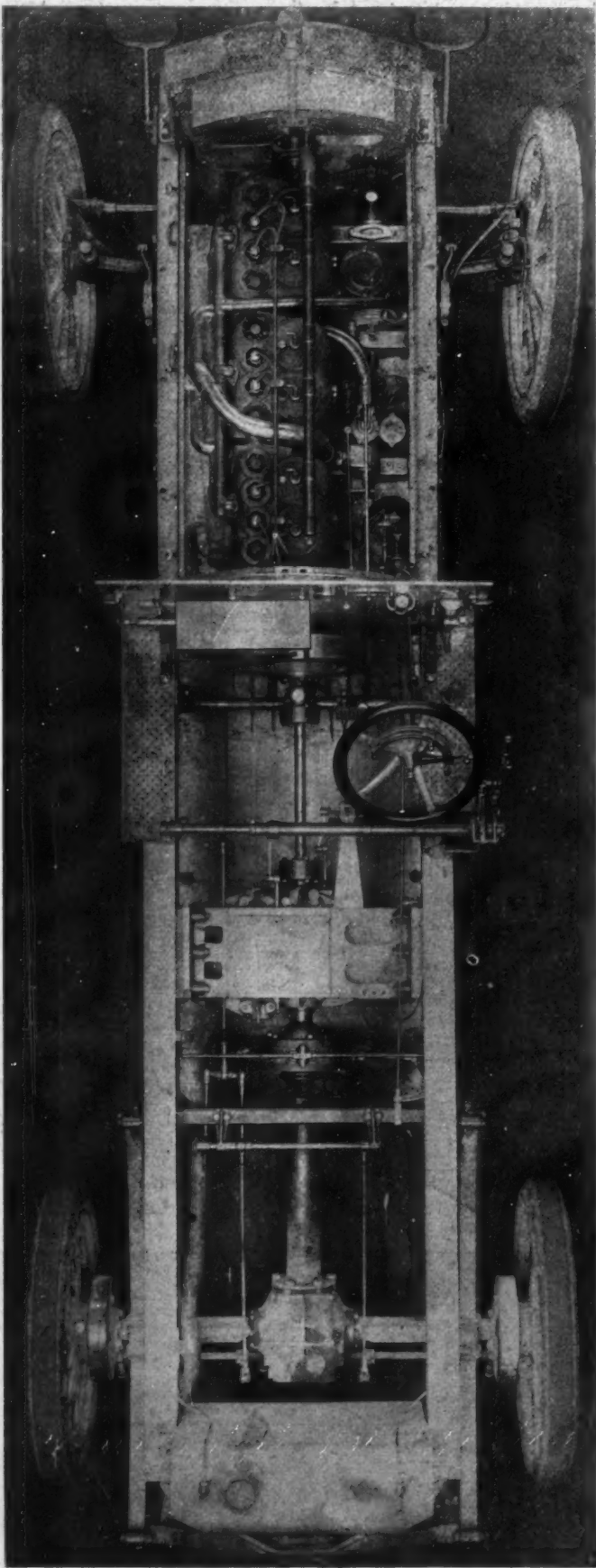
Two sets of powerful brakes are furnished, the foot brake being located at the rear of the gear box and the emergency brakes expanding in the rear wheels. These are entirely inclosed and are provided with or without an interlocking device inter-connected with the clutch at the option of the purchaser. The wheelbase of the six-cylinder car is 126 inches, with 56-inch tread. Wheels are 36 inches, the tire sizes being 920 mm. by 120 mm. rear and 915 mm. by 105 mm. front. Full equipment is given including a six-bow extension top with curtains, two acetylene head lights, two side and one tail oil lamps. The body is of combination aluminum and wood, seating seven passengers, the tonneau being notably roomy for its five passengers. The standard finish is Napier green, with nickel trimmings and polished aluminum dash. The price is \$8,000.

AN EXHAUSTIVE TEST.

INDIANAPOLIS, IND., NOV. 19. —Probably the most interesting engine test ever made in this city is that recently completed by the National Motor Vehicle Company. The company decided upon a 10,000-mile test on the theory that the average season's mileage is 5,000 miles, and that an engine should run under ordinary condition and care at least two seasons without adjustment. The engine was fitted in an ordinary testing car and the run started. The drivers were sent out with instructions to run. Where they went made no difference to the company, just so they made the mileage. Hundreds of miles of Indiana roads, good, bad, and indifferent, were covered and recovered during the run. For two days the car was placed at the disposal of the Indianapolis Police Department, which was busy at that time in pursuing a negro desperado who had murdered a police officer. One of these runs was of fifty miles at night through a rainstorm.

An extra seat was fastened to the testing car and five police officers crowded into it, besides the driver.

The test was completed some time ago, and the engine has since run 4,000 miles, although no further effort is being made for mileage. So far the engine has required no adjustment, it is claimed.



CHASSIS OF 60-HORSEPOWER 6-CYLINDER NAPIER.



MODEL M MAXWELL, A 30-40-HORSEPOWER FOUR-CYLINDER TOURING CAR WITH THERMOSYPHON CIRCULATION.

THOUGH the Maxwell-Briscoe Motor Company has been manufacturing automobiles at Tarrytown, N. Y., for a comparatively short time only, their cars have become well and widely known, and the little two-cylinder runabouts and light touring cars have poked their noses into every corner of the country and "made good" with surprising regularity. And now that the same concern has taken up the manufacture of a bigger car with four-cylinder motor, equally good results, on a larger scale, are anticipated. There will be three separate and distinct chassis built for 1907, and one of these will be fitted with two different styles of runabout bodies, constituting two models. It is the smallest chassis—the runabout—that will be so handled. One body will be similar to that of the 1906 tourabout, and will have an undivided front seat; it will be called Model RL. The other will have a divided front seat and turtle deck in the rear and will be called Model RS. The two-cylinder touring car will be Model HB, and the four-cylinder machine Model M.

The runabout chassis shows little change; but two important alterations have been made in the horizontal double-opposed motor. The cylinder bore has been increased to 4 1-2 inches, the stroke remaining at 4 inches, and the compression has been reduced to 60 pounds. As a result, the manufacturers state that the car performs much better on hills and is more powerful and smoother running all round. The engine is now rated at 12 horsepower, an increase of 2 horsepower over last year's runabout motor. The planetary transmission has heretofore been fitted with bronze bands, but these will no longer be used. Steel bands will be fitted with linings of cross-grained hickory blocks, which have been found to give wear at least equal to that of the bronze bands and to engage more smoothly and gradually. The regular Maxwell construction is retained in the arrangement of the engine and transmission gearcase in the form of a big T, the two cylinders of the engine forming the head and the transmission gearcase the stem. This unit is supported on a three-point sus-



CHASSIS OF MAXWELL MODEL M, SHOWING THREE-POINT SUSPENSION OF ENGINE AND TRANSMISSION.



MODEL RS RUNABOUT WITH DIVIDED SEAT.

pension system. Final drive is by propeller shaft and bevel gears, the propeller shaft having two universal joints. The thrust of the bevel driving pinion on the large gear is taken by a bevel roller placed at the back of the gear. This detail has proved most successful and to its satisfactory working is attributed no small measure of the success of the car. An all-metal multiple disk clutch is fitted between the motor and the transmission, within the casing. Framing is all of pressed steel, hot riveted.

A Maxwell feature is the cooling system. This is of the thermosiphon or gravity type, no pump being employed. All the piping is of large diameter to facilitate the easy flow of the water. A special form of radiator is used, divided into two sections with a clear water space between. This accounts for the bar of brass which crosses the front of the radiator of every Maxwell two-cylinder car, and is an unmistakable identification mark.

Hyatt roller bearings are used throughout the car. Ignition is by jump spark. Wheelbase, 72 inches; tread, 56 inches. The body is of sheet steel. In the case of the plain-seat car—Model RL—the body will be finished all in green; Model RS, with divided front seat, will be a red car. The price is the same in either case—\$825.

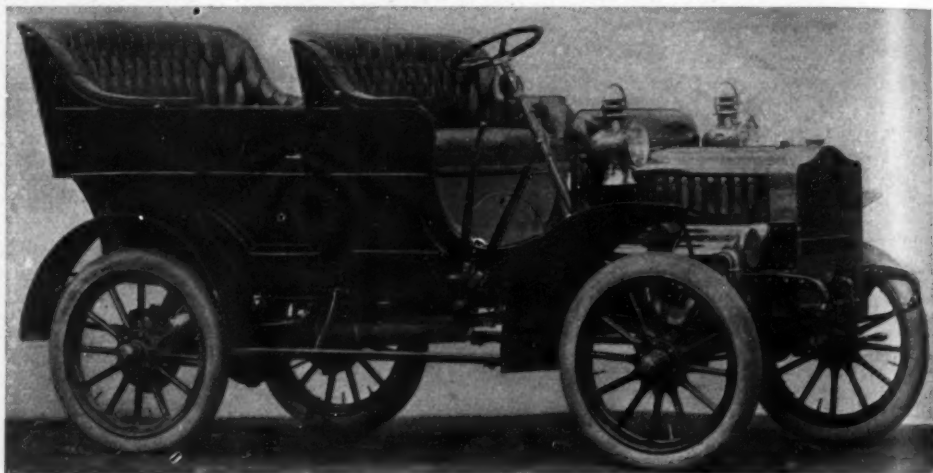
With the exception of dimensions, power and a few details the description of the runabout chassis will answer for the chassis of the light touring car, Model HB. The motor has cylinders of 5 inches bore and stroke, is rated at 16-20 horsepower and is attached to the transmission case and supported the same as in



MODEL RL RUNABOUT WITH PLAIN SEAT.

the little car. The transmission, however, is a three-speed sliding-gear mechanism of the progressive type, giving a direct drive on the high speed. A change made for 1907 is to place all brakes on the rear hubs; there are both internal and external brakes, the latter being lined with cross-grained hickory blocks, the same as in the transmission clutch bands of the little car. The wheelbase is 86 inches and the tread standard; wheels are 30 inches in diameter, with 3 1-2-inch tires. The body, of sheet steel, is of the popular side-entrance type and will seat five persons; the finish is green, with black leather upholstery. Price, \$1,450.

In building the big four-cylinder car—Model M—the same cardinal principles involved in the smaller machines are incorporated, including thermosiphon circulation of the cooling water, crankcase and transmission gearcase made in a single casting, power plant suspended from three points, multiple disk clutch and shaft and bevel-gear drive. The motor has cylinders of 5 inches bore and stroke and is rated at 36-40 horsepower; cylinders are individually case and have integral water jackets and heads. Valves are all mechanically operated. Oiling is effected by a mechanically driven lubricator, and ignition is by jump spark from storage batteries. Valves are on opposite sides



MODEL HB, TWO-CYLINDER LIGHT TOURING CAR.

of the cylinders and the cams, shafts, two-to-one gears and so on are inclosed and are lubricated by oil from the crankcase. The crankshaft runs in five babbitted bearings, and is thus rigidly supported. Connecting rods are adjustable at both ends.

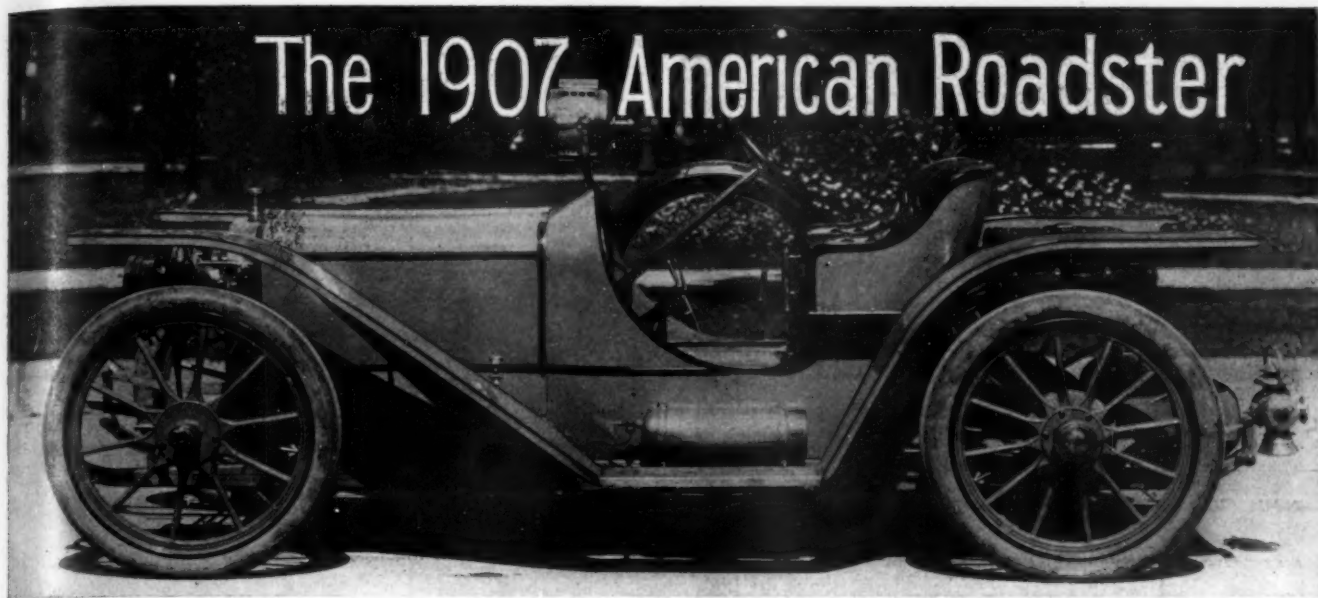
Three speeds forward and a reverse are provided by the progressive sliding-gear transmission. The chrome nickel steel gears are cut and hardened by Brown & Sharpe, as are also the bevel driving pinion and gear on the rear axle. Hyatt roller bearings are fitted throughout the car. The framing is of the customary pressed steel construction, hot riveted.

As in the smaller cars, the body is of pressed steel, and all ornamentations are stamped in the steel instead of being attached afterward. Five persons can be carried easily, and when so ordered extra drop seats can be fitted in the tonneau. The wheelbase is 104 inches and the tread standard. Wheels are 34 inches in diameter, with 4-inch tires. The finish is green and the upholstery of high-grade leather. The price is \$3,000 with standard equipment.

NEW WHITE BRANCH AND GARAGE FOR TOLEDO.

The White Sewing Machine Company, of Cleveland, has decided to open a large salesroom and garage on Madison avenue near Thirteenth street, Toledo, O. The floor dimensions of the new structure will be 50 x 120 feet, and the White people have secured a five years' lease of the property. William Wilkie, of Cleveland, will be the manager.

The 1907 American Roadster



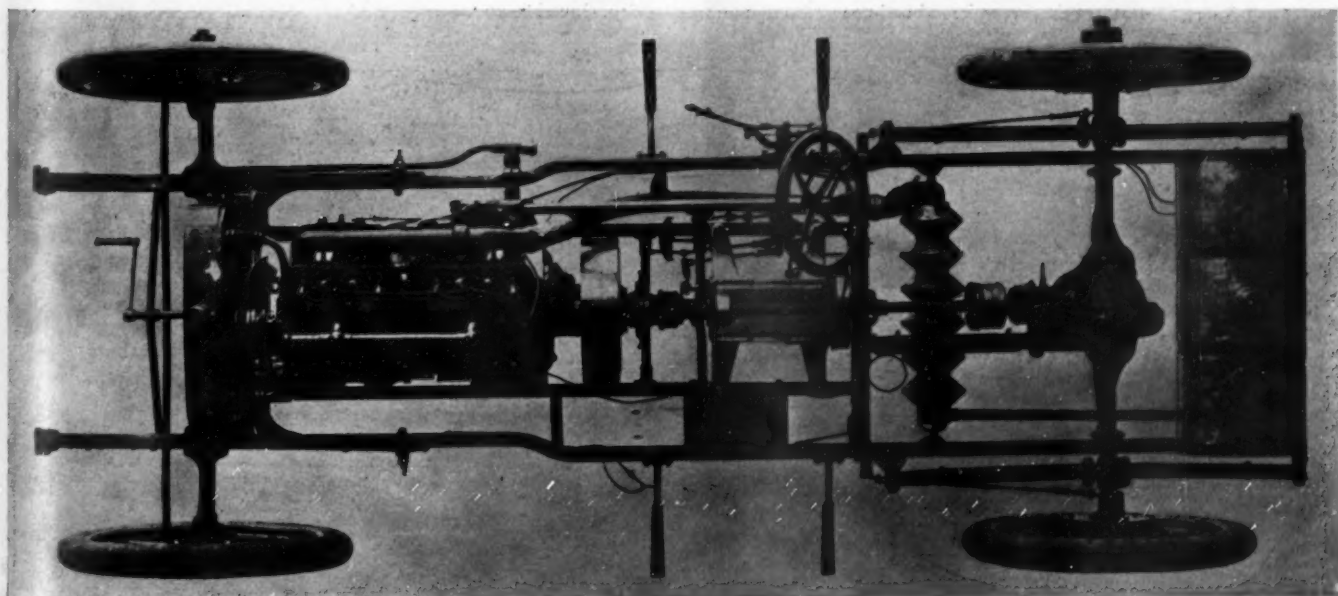
HIGH-POWERED AMERICAN ROADSTER, FOR TWO PASSENGERS, WITH UNDERHUNG CHASSIS.

PROMINENTLY standing out in the construction of automobiles is the chassis of the American Roadster as built by the American Motor Car Company, of Indianapolis, Ind. The points at once noticed is the manner in which the spring suspension has been worked out and the consequent frame suspension. This double arrangement is practically a reversal of the usual condition in that the weight is hung from the springs—carried below—bringing it underneath the axles instead of above them. The idea of the makers in placing the side frames, carrying the power plant, in this underneath position is worked out to its effect on the tires along the following lines of reasoning:

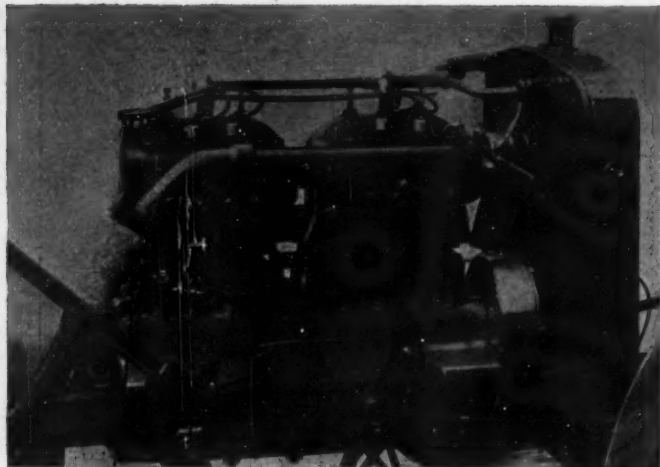
Starting with the well-credited condition that the result of spring recoil has so much to do with the wear and tear on tires, this point is carried to a cause as being the impact from downward recoil and its attendant tendency to hammer the tires, where the weight is placed above the springs and axles. From this comes the argument that with the below-hung frame the impact is upward with a tendency to lighten the load on the tires and to lift them. At first thought it would appear that with this underhung arrangement there would be danger in going over rough

roads of shocks, carrying the frame down to a point where there would be a possibility of its striking projections in the road. To offset this first thought it should be taken into consideration that the springs are under tension from the weight of the car when the frame reaches its extreme downward position, a 10-inch clearance having been determined upon for this point by the makers, therefore the recoils are upward instead of downward, and extreme recoils would bring the frame up to the axles. The usual rubber bumpers and spring auxiliaries are used, but with this underhung frame their action is obviously the reverse of what they would be on overhung frames.

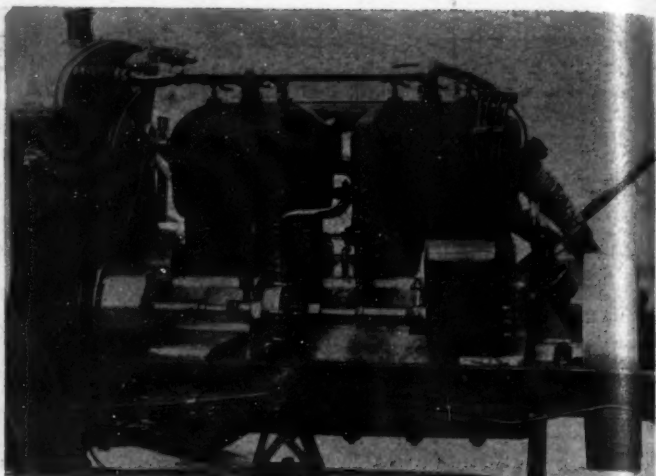
No claim is made by its sponsors that this frame-hanging is universal in its application. In fact, they question its adaptability to touring cars of large passenger capacity and consequent heavy bodies. It is in its application to the powerful car for two, as here applied, that its ideality is claimed. The position of the two occupants, together with the suspension arrangement, tends to give a peculiarly swinging movement as the car rolls over rough roads. It is notably not a touring car chassis with superstructure changed, but distinctly a model in itself of a high-powered runabout, giving



AMERICAN ROADSTER CHASSIS, SHOWING SPRINGS ABOVE AXLES AND ABOVE FRAME SIDES.



RIGHT SIDE OF MOTOR, SHOWING INTAKE AND EXHAUST.



LEFT SIDE OF MOTOR, SHOWING MAGNETO, PUMP, ETC.

a low center of gravity against skidding and upsetting at high speeds. The cylinders are 5-inch bore by 5-inch stroke, of high compression design, cast in pairs, with all valves mechanically operated and on one side. The half-tissue gears are located inside the engine crankcase. The crank bearings are in the upper half of the case, which, in fact, carries the entire engine assembly, the lower half of the case being an oil-container, removable without disturbing any bearing. Water circulation is by centrifugal pump and a two-way header to the cooler. Double ignition means are provided in a high-tension magneto and a coil with auxiliary battery. Oiling is from a seven-feed Lunkenheimer mechanical oiler attached to the dash. Carburation is through an automatic air-feed and float-controlled gasoline feed. The main supply of gasoline is carried in a 24-gallon tank at the extreme rear of the car. From here the feed is carried, under pressure from the engine exhaust, to an auxiliary tank on the dash which feeds the carburetor by gravity.

Power is transmitted to the three-speed and reverse, sliding gears of the progressive order of engagement, through a leather-faced cone clutch with supplemental springs, retaining the drive used in the roadster during the past year. The mud pan is perfectly flat, made possible by the fact that the under edge of the frame is the lowest point for the entire length of the car. The pan extends from the front axle to the rear of the frame and has a 10-inch road clearance. The wheels are 36 inches all round, ten spokes to the front and twelve to the rear, with 3 1/2-inch front tires and 4-inch tires at the back. The wheelbase is 106 inches.

The ratio of gearing works out to a mile a minute for the 36-inch wheels with the engine running at 1,200 revolutions. The load is arranged to be carried well in the center of the chassis length, and added to this attention has been given to the question of weight, the net figures being 2,360 pounds.

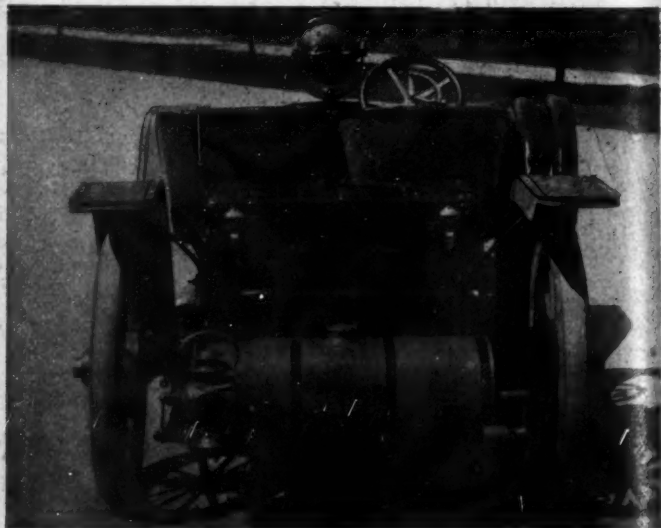
In addition to the roadster a touring car is made, seating five persons. The power plant is the same as that used on the first named. This plant is mounted direct on the main frame, which in this model is carried above the springs, there being three of these at the rear. The wheelbase is 116 inches and the wheels 36 inches, with 4-inch tires all round. Front axle is of I-beam section, and the rear of the floating type, with a torsion lever and buffer bracket between it and the main frame cross member.

QUAKER CITY'S SHOW COMPLICATIONS.

PHILADELPHIA, PA., Nov. 19.—Too much of a good thing may be the good old Quaker City's portion when it comes to automobile shows. Several months ago, when the prospect of having a show under the auspices of the local trade organization seemed decidedly meager, a number of its members organized the Philadelphia Automobile Show Association. Now the parent body, the Philadelphia Automobile Trade Association, is sitting up and has the intention to run a show. Both associations are made up mainly of the same men, and both seem determined. Percy Neel, the local Pope-Toledo man, is president of both! There's a situation for you.



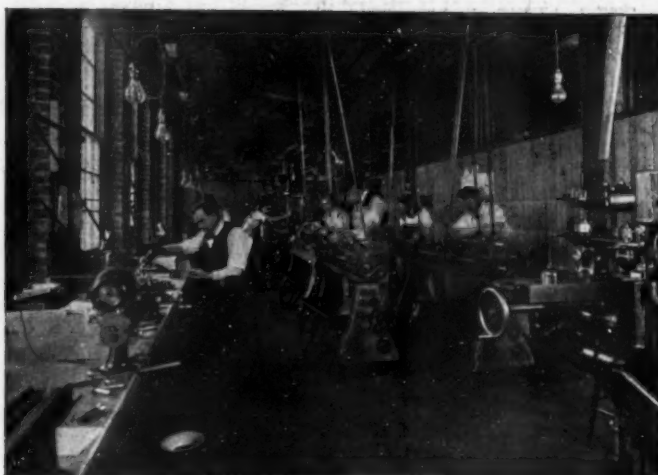
HOW THE AMERICAN ROADSTER LOOKS FROM THE FRONT.



REAR VIEW OF AMERICAN ROADSTER SHOWING TANK.



VIEW OF SECOND FLOOR JONES SPEEDOMETER WORKS.



TOOL MAKING DEPARTMENT ON THE FIRST FLOOR.

WARMING THE JONES SPEEDOMETER FACTORY.

"Forty-five minutes from Broadway," the invitations read, and a special train of four cars and engine, the former filled with invited guests, pulled out from the Grand Central station, New York City, at 8 o'clock, Saturday evening, November 17, to test the truth of the reckless assertion and enjoy the hospitality of J. W. Jones, inventor and manufacturer of the Jones Speedometer, at his new factory at New Rochelle, N. Y. A Jones Speedometer attached to the dash of the locomotive measured the rate of speed traveled to a hair, and forty-five minutes later the train landed its 300 occupants at their destination.

The new factory was illuminated and gaily bedecked in a manner fitting the occasion. After the outer wraps of the guests were stowed away and their names were engrossed on a large illuminated parchment, the pipes of peace were filled and passed, and an inspection of the new plant was in order. In the three spacious floors filled with the most modern machinery for the production of the accurate work required in the speedometers, everything was in apple pie order and a marvel of neatness, which spoke volumes for the businesslike proprietor. On the second floor, the stock room carried a stock of something else besides brass rods and parts that evening, and the popularity of this particular section of the factory with the guests was unbounded. On the third floor an improvised stage was set up and one end

of the room was turned into a theater for the occasion. Festoons of flags and bunting decorated the walls, a vaudeville entertainment was provided, and during its progress addresses were made by Mr. Jones, his business assistants, G. L. Holmes and J. B. Rowland, and Col. K. C. Pardee, of the Maxwell-Briscoe Motor Car Co., Inc., the last named telling in fitting language of the rise and success of the Jones Speedometer in the past five years through the energy of its inventor.

Immediately in the rear of the part reserved as an auditorium for the guests an elaborate collation was served after the evening's entertainment was concluded. Hot weiners and sauerkraut opened up the bill of fare, and were immediately followed by chicken salad and sandwiches in plenty, together with celery, olives and radishes. A separate table was well stocked with cheeses in variety, and hot coffee was served at another table. Of good cigars there was a plenty. As a fitting finish to the repast several large cakes, made and decorated to resemble huge speedometers, were cut and served to the crowd.

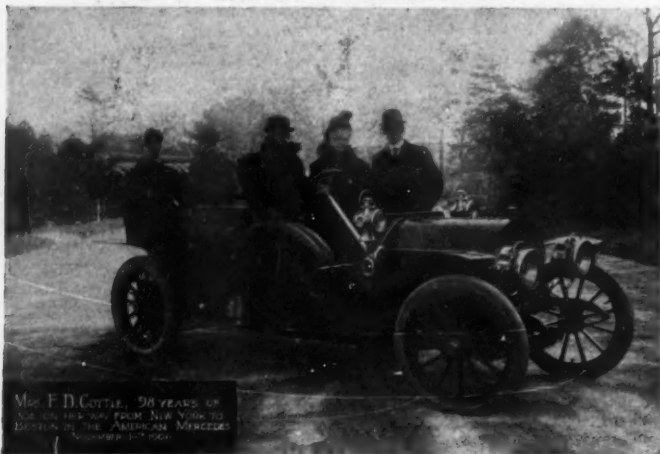
It was half past one Sunday morning when the party bid a regretful farewell to their host and boarded the special train courteously provided, for the metropolis. It did not take forty-five minutes to make the return trip, but then the speedometer had been lost while the train was waiting, and as the constables were asleep at that hour there were no arrests for overspeeding.



GUESTS ENJOYING THE THEATRICAL ENTERTAINMENT AT CHRISTENING OF THE NEW JONES SPEEDOMETER FACTORY AT NEW ROCHELLE.

THE AUTO JOURNEY OF A NONAGENARIAN.

Boston, Nov. 19.—More than half a century ago Mrs. F. D. Cottle left her home in Vineyard Haven, Mass., and traveled by steamship to Panama, thence across the isthmus and up the Pacific coast to the gold fields of California. Yesterday she returned to her old home in an automobile. She is ninety-eight



years old, but despite her years has lately returned across the continent by train, and drove from New York to Boston and thence to Vineyard Haven by automobile. Mrs. Cottle resided in San Francisco until her home was destroyed by the earthquake and fire last spring. Then she came East and has been spending the summer with Mrs. J. J. Evans, her daughter, in New York.

Recently she took her first ride in an automobile, and enjoyed it so much that she expressed a desire to ride to Boston and make a trip to her old home in Vineyard Haven. An American Mercedes car was secured for the trip, and the party, consisting of Mrs. Cottle, Mrs. J. J. Evans, J. J. Evans, and H. C. Stratton, of Boston, and Mrs. Stratton, reached Boston from New York Saturday afternoon. Mrs. Cottle rode with the chauffeur much of the time, and when she reached the Hotel Touraine said that she enjoyed her ride and was not much fatigued. To show that her long trip from New York had not tired her Mrs. Cottle was ready Sunday afternoon for the journey to Vineyard Haven.

E. T. BIRDSALL TO BE SELDEN DESIGNER.

E. T. Birdsall, the well-known consulting engineer, who has been identified with the automobile industry since its inception in this country, has been appointed chief engineer and designer of the Selden Motor Vehicle Company, Rochester, N. Y. Mr. Birdsall will take his new position early in December, removing from New York City to Rochester. Recently he completed a six-cylinder car at his workshop in New Rochelle, N. Y., it having been constructed for an enthusiast who prevailed upon Mr. Birdsall to be the maker. The car is now running in and about New York City, and giving excellent satisfaction.

The Selden company will build both six and four-cylinder touring cars, and possibly a runabout.

HARTFORD RIM NOW THE MIDGLEY.

In order to simplify the marketing and avoid confusion in classification by tire makers using same, the name of the Hartford Universal rim was last week changed to the Midgley Universal rim. This rim is widely used, as it takes either the Dunlop or clincher type of tires.

The Bouton Motor Company, for years located at 108-112 West Forty-first street, New York City, has opened a salesroom at 1675 Broadway, near Fifty-second street, in charge of A. H. Chadbourne. The York Pullman will be its leader.

THE DESIGNER OF THE DRAGON.

Leo Melanowski, the designer of the Dragon car, was born in France in 1862. After going through the French schools, he took a four years' course at the Liege Polytechnical Institute, in Belgium, on gas engineering and designing. After that he was employed by the Otto Gas Engine Company, of Vienna, as mechanical expert and chief engineer. He then accepted a position with the Miller Gas Engine and Automobile Company of Buda Pesth, Hungary. In 1892 he built his first automobile, an air cooled single cylinder, for himself, in Paris. After completing this, Mr. Clement engaged him as chief engineer and designer. In 1891 he built a single cylinder, air-cooled, then two-cylinder, then four-cylinder under the hood, and changed to water-cooled, as he was unable to get proper results out of an air-cooled motor.

Mr. Melanowski also had the honor of building the first car on the other side with ballbearing front and rear axles, which was the first Panhard racer. In 1901, he came to this country and was employed by Mr. Winton as chief engineer and designer. He returned to France and came back in 1905 and was employed in 1906 to design the Dragon, one of the lightest four-cylinder five-passenger cars ever produced. Mr. Melanowski speaks several languages fluently, French, German, English, Russian, Spanish, and Italian. He has also invented several important devices for the improvement of gas engines from which he derives large royalties. Mr. Melanowski visits each year all the foreign shows to keep posted on what is going on on both sides of the water.

AUTO "STRONG BOX" FOR BANK DEPOSITS.

When the Night and Day Bank of New York City opened its doors to depositors who needed banking facilities after the usual banking hours, not the least of its problems was the safe transportation of deposits, made by such customers as theaters and restaurants, in the early morning hours. Obviously, a traveling safety deposit vault was a solution, and the "traveling" part of the scheme found its equally obvious solution in the automobile. A Stoddard-Dayton car was ordered and a special body was built in which is enclosed a safe that is made as much a part of the chassis as the frame members themselves. When the automobile arrives at the customer's door he places his money in a small steel box, which is locked into a compartment. The customer has one



THIS STODDARD-DAYTON IS A SAFETY DEPOSIT VAULT.

key and the receiving teller another. If the automobile is attacked and stopped by robbers they cannot work the safe loose from the chassis and they cannot drive away with the automobile as a whole because of its secret engine control.

The Association of Licensed Automobile Manufacturers announces that its 1907 handbook will be ready December 1.

NEWS AND TRADE MISCELLANY.

Andrew Carnegie has ordered his third Winton, a Model M touring car. The others were limousine cars, one of which continues in Mr. Carnegie's service.

Paul Lacroix, general manager of the Renault Freres selling branch, New York City, reports the sale of Renault limousines to William Rockefeller, Hobart Park, and Dr. Anderton.

A new store is to be erected for the Chicago branch of the H. H. Franklin Manufacturing Company at 1450 Michigan avenue. This move was decided on some time ago by the Franklin people, and work will begin at once on the new structure.

To the list of manufacturers who make Truffault-Hartford shock absorbers a part of their regular equipment, has been added Lane Brothers, of Poughkeepsie, N. Y. This makes thirteen manufacturers who have adopted the Truffault-Hartford suspension.

S. N. Brown & Co., of Dayton, O., manufacturers of vehicle and automobile bows, have acquired a very fine piece of timber land situated in Miami County, near Troy, O. This is a tract of virgin timber predominant with second growth ash and hickory. There is also considerable oak, walnut, and other timber.

Smith & Mabley, Incorporated, 1765 Broadway, New York City, have recently established a department to furnish automobile supplies and sundries at wholesale. This branch of their business is in charge of J. F. Fairman, who is prepared to furnish estimates, submit specifications, and quote prices on everything used in automobile construction or equipment.

A new booklet illustrating and describing the merits of the Marsh rim has just been issued by the Diamond Rubber Company, of Akron, O. The construction of the rim is clearly explained, also the various operations of removal and replacement of tires on same. A price list of the Diamond Quick Detachable tires occupies a page of the book. The list went into effect November 1.

The adoption of a standard thread for spark plugs was the chief subject for discussion at the November meeting of the mechanical branch of the Association of Licensed Automobile Manufacturers. The merits of the various threads in use were discussed and the Test Committee was instructed to conduct a series of experiments with a view to determining the most advantageous diameter and number of threads per inch.

Under date of November 10 an erroneous news dispatch was printed in the daily press that the Boston store of the Firestone Tire and Rubber Company had been destroyed in a general fire on Beverly street. The Boston establishment of this company was removed from Beverly street last February to 9 Park square, and the only apparent explanation for this erroneous report is the fact that some of the old signs bearing the name of the Firestone Tire and Rubber Company had been allowed to remain.

The Auto Chemical and Manufacturing Company, 1773 Broadway, New York City, is handling what it calls the "Arctic" non-freezing, non-corrosive, and non-crystallizing radiator cooling compound, whose freezing point is placed at 40 degrees below zero with a boiling point much higher than that of water. The company states that

before handling the compound it was subjected to most severe tests and its ingredients passed upon by chemists of repute.

Charles Craig, general sales manager of the Harrison Wagon Works, of Grand Rapids, Mich., and William R. Hatcher, general superintendent of the factory and designer of the 40-horsepower Harrison car, are in New York City, the former having driven the car from the factory at Grand Rapids, Mich. The entire trip was made without a puncture. After attending the shows in New York, Boston and Philadelphia will be visited and the car will be driven as far south as Washington. About the middle of January the return trip will be made to the factory. It is estimated that the total journey will bring the figures close to 5,000 miles.

Owing to its rapidly increasing Western business the Rainier company has just leased a complete ground lot 50x163 feet in Chicago, located at Michigan avenue and Eighteenth street. Work has already commenced on a two-story showroom and garage, which will be devoted exclusively to the Rainier interests. The building is expected to be completed about January 15, when the Chicago branch will be moved from its present location, 1253 Michigan avenue. Edward O. Cordner will continue as manager, and I. D. Tussey, who has been for several years associated with the Pence Automobile Company, of Minneapolis, has been engaged as Mr. Cordner's assistant.

NEW AGENCIES ESTABLISHED.

John H. Adams, of York, Pa., has secured the agency for the Marmon air-cooled cars in that vicinity.

The Davis Automobile Company, of Providence, has secured the Rhode Island agency for the Oldsmobile.

The Pennsylvania Automobile Company, corner Hay and Kelly streets, Wilkensburg, Pa., has secured the Marmon air-cooled car for next season in Greater Pittsburg.

Smith & Mabley, Inc., have appointed the Albany Garage Company, of 28-30 Howard street, that city, as agents for Albany and the surrounding territory for the Simplex and Isotta Fraschini cars.

A charter has been granted to the E. A. Jenkins Company, of Columbia, S. C. The capital is \$5,000, and T. B. Jenkins is president, and E. A. Jenkins secretary and general manager. The company will do a general business in automobiles.

Agency contracts have been closed by the Rainier company with A. H. Hayes, Jr., San Francisco, for the Northern California district, and with A. L. Richmond, Jr., of Pittsburg, for Western Pennsylvania and Eastern Ohio.

The Frederick Sontag Company, of Boston, which handled the American car, has dissolved. Mr. Sontag has gone to Providence to locate and will have Rhode Island and Connecticut for the American. W. A. Frederick will retain the American agency for Boston, in the Motor Mart.

The Cadillac Motor Car Company has been incorporated at Indianapolis, Ind., to handle the Cadillac in the greater portion of that State. A three-story building has been leased for temporary use at 211 East Ohio street, and Olin Peck has been installed as

manager. Until the present time the Cadillac has been sold in that section by the Indiana Automobile Company.

The American Automobile Company, 5922 Baum street, East End, Pittsburg, Pa., has fitted up a fine garage and salesroom, and will handle all the Pope lines for that vicinity in the future. This is the first time the Pope makes have all been under one roof in Pittsburg. The officers of the company are: President, George X. Wittmer; vice-president, A. E. Kern; secretary, H. D. Hason; treasurer, L. C. Myers; sales agent, O. E. Vestal.

Selling agencies have been established by the automobile department of the St. Louis Car Company, makers of the American Mors, in the following Western cities: Portland, Ore., San Francisco, Denver, Salt Lake City, and Kansas City. A. J. Hechtman, president of the City Hall Garage, San Francisco, has the exclusive American Mors rights there, and Pardee & Co., formerly representatives of the Packard, are sole distributors in Chicago.

The Aerocar will hereafter be represented in a handsome new home of its own in Detroit. Henry E. Beyster and Thomas J. Thorpe have formed a company to be known as Beyster, Thorpe & Co., with \$25,000 capital, and entered the automobile field. A site has been purchased and the erection of a spacious garage with 50 feet frontage and a depth of 90 feet has been started at 1329-1331 Woodward avenue. The building will have an attractive plate glass and pressed brick front, and will be modern in every detail. The Aerocar line will be handled exclusively.

PERSONAL TRADE MENTION.

George Soules, one of the best-known racing men in the West, is now with the DeLuxe Motor Car Company, of Detroit.

H. L. Cunningham, well known in the past as an expert driver of racing cars, has been appointed sales manager of the retail salesrooms of the Ford Motor Company, at Detroit.

A. M. Spear, Jr., formerly with the Maine Motor Carriage Company, Portland, Me., has assumed management of the J. A. Dowling automobile business at 22 Forest avenue, that city.

Joseph Tracy has been retained as consulting engineer by the Metal Stamping Company, of New York, who are introducing several automobile specialties, including a very original idea in radiators.

F. W. Ansley, who has for some time past been connected with the sales department of the H. H. Franklin Manufacturing Company, has been chosen as Franklin representative for New York and New England.

H. L. Stoutz, of New Orleans, La., has severed his connection with the automobile business in that city with which he was formerly identified, and will engage in business individually as selling agent. He is in the market to represent one or several cars in the Crescent City.

Paul L. Snutsel, of the Snutsel Auto Supply Company, of New York, sailed for Europe last Thursday, with Brussels as his ultimate destination, in order to make final arrangements for the American manufacture of the well-known Belgian car, the Pipe, a replica of which will be built here next season. Mr. Snutsel will also visit the Paris Salon and will close contracts for the importation of a number of novelties in the accessory line.

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ABSOLUTELY the best proposition offered young men of good habits is a course at this school; our graduates have fine positions at salaries of \$100 per month and more; chauffeurs mastering our course are fully competent to take charge of the high-priced cars; energy and ambition with our tuition spells success; special course for Owners. Call or write New York School of Automobile Engineers, 146 West Fifty-sixth St., New York.

AUTOMOBILE OWNERS, do you want your tires repaired or recovered by people who know how? Give us a trial, and be convinced. Inner tubes vulcanized at short notice. Jungking & Vogler, 153 Chambers St., New York City. Telephone, 3386 Cortlandt.

ASSISTANT sales manager wanted, for retail branch; must be a good business man as well as competent salesman; good opportunity for early promotion to right man. Give full particulars as to business experience, references, age, salary expected, etc. Address Dom., care The Automobile. Nov. 29

AN INVENTOR who has made a small flying machine that flies like a bird, U. S. patent pending, would like to correspond with party who would furnish capital to patent it in foreign countries for one-fourth interest in the foreign patents, or would furnish capital to build a large one to carry a man for interest in the same. Address Wm. Morgan, Fort Plain, N. Y. Nov. 22

AUTO TIRES—New and second-hand, all ways in stock, at liberal discounts; shoes recovered, blow-outs repaired; Balley treads applied, etc. Call 5384 Columbus, or write Broadway Rubber Tire Works, 1900 Broadway, New York City. Nov. 29

AUTOMOBILES—If you are anticipating the purchase of an automobile, we will give you the benefit of our experience as the oldest concern in the repair business in this State. We are not agents, nor are we interested in any one make of machine, so stand in position to honestly advise you. Write us, stating the amount you wish to pay (enclosing \$5), and we will tell you the best machine to buy. Portland Garage Co., Portland, Maine. t.f.

BARGAIN—4-cylinder runabout, 4 1/2 x 5 motor, 4-speed, sliding gear, double chain drive, 4-in tires, everything in fine condition; demonstration gladly given; \$500; will take motorcycle as part payment. O. B., care The Automobile. Nov. 22